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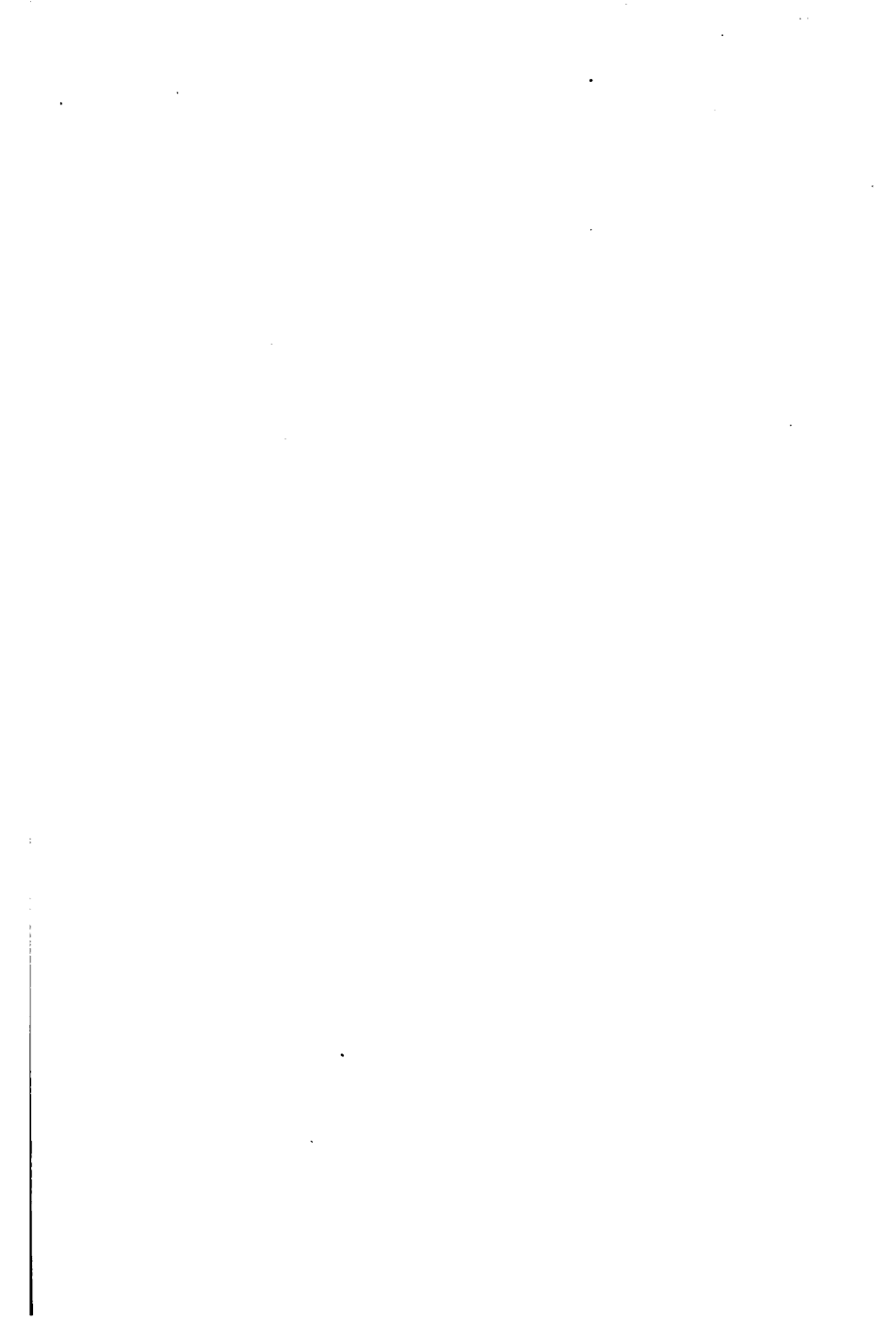
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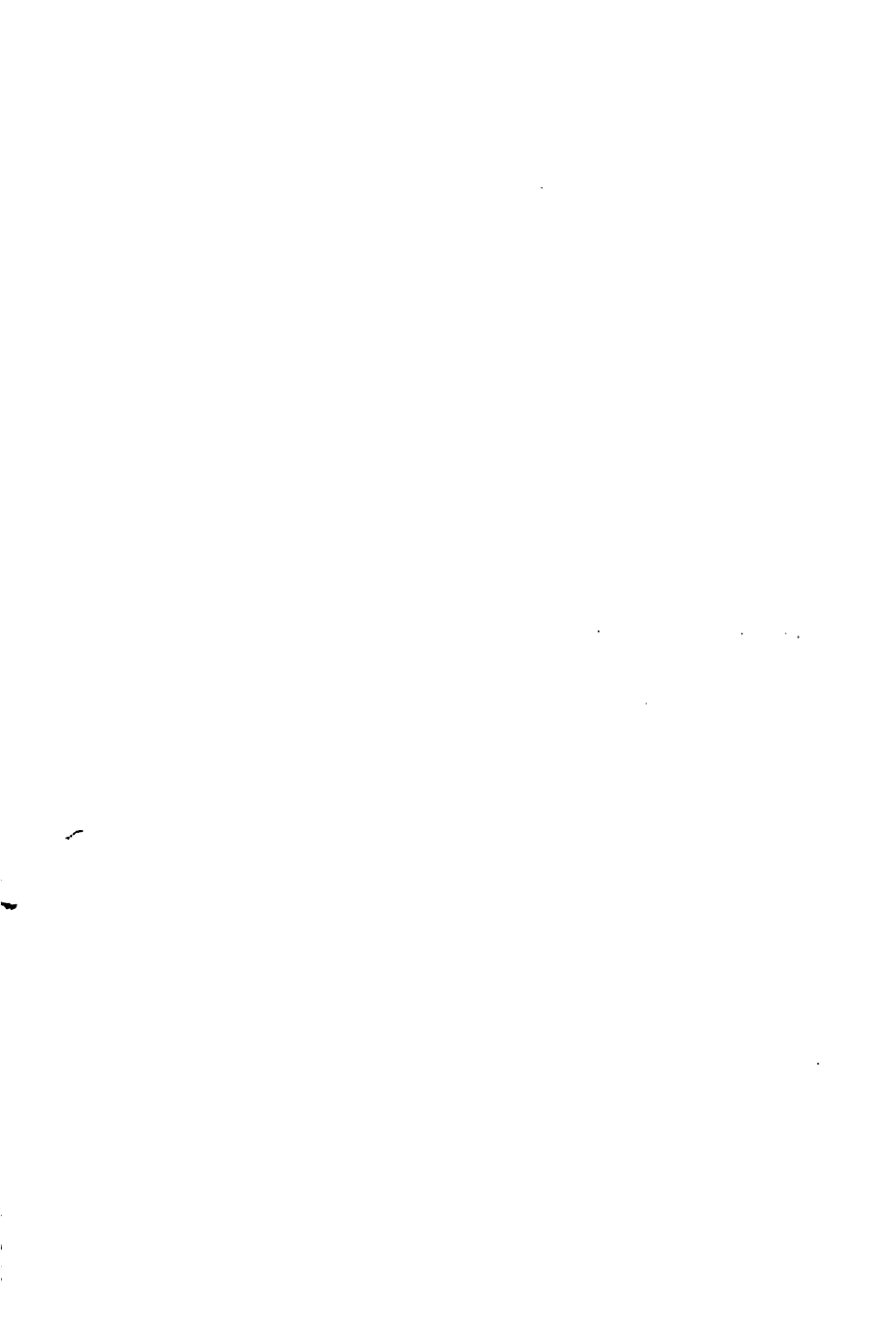
Dr. W. C. Mackie

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A
DICTIONARY OF MEDICAL TREATMENT
FOR STUDENTS AND JUNIOR PRACTITIONERS



1826 ✓
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DICTIONARY OF MEDICAL TREATMENT

FOR STUDENTS AND JUNIOR PRACTITIONERS

BY

ARTHUR LATHAM,

M.A., M.D. OXON., M.A. CANTAB., F.R.C.P. LOND.

PHYSICIAN AND LECTURER ON MEDICINE AT ST. GEORGE'S HOSPITAL,
SENIOR ASSISTANT PHYSICIAN TO THE BROMPTON HOSPITAL FOR CONSUMPTION
AND DISEASES OF THE CHEST,
ADVISORY PHYSICIAN TO THE THROAT HOSPITAL, GOLDEN SQUARE,
ADVISORY PHYSICIAN TO THE YORK ROAD LYING-IN HOSPITAL

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PREFACE

This little book has been written in response to an invitation from Messrs. J. and A. Churchill. It is intended for students and junior practitioners. Its aim is to give a definite course of treatment for any disease which is commonly seen in medical, as distinct from surgical or special, practice. It is, of course, true that every case has to be dealt with on its merits, and in accordance with the characteristics of the individual patient. It is, however, impossible to vary our treatment unless we have a clear-cut and definite idea of the usual procedure in the majority of cases of the disease in question. Space has not sufficed for me to give more than the general method of treatment to be adopted. At the same time an attempt has been made to give sufficient detail, and precise accounts of such remedies as the Schott-Nauheim Treatment and Fränkel's Exercises. Artificial Feeding of Infants and Vaccine Therapy have also been included. Alternative methods of treatment and more ample discussion can always be referred to, if the course laid down in the following pages does not meet with success.

The difficulty of writing a book of this kind is more considerable than I thought when I accepted the invitation to write it. It has been partly met by a somewhat dogmatic style, for a small work of this kind must necessarily be

dogmatic if it is to be of service. A large number of authors have been freely drawn upon, but references and names have been omitted from the text in order to meet the limitations of size necessarily imposed.

I am much indebted to my colleague Dr. W. J. Fenton, who has kindly read through the manuscript and the proofs and has made a number of valuable suggestions, and to Mr. Cheers, of the Dispensary at St. George's Hospital, who has checked the various prescriptions given in the text.

ARTHUR LATHAM.

LONDON: *October* 1908.

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DICTIONARY

OF

MEDICAL TREATMENT

ACNE VULGARIS.

Anything which is likely to cause flushing of the face must be avoided. Thus diet is of importance. Sugar, tea, coffee, beer, fermented liquors, and condiments should be avoided for a time. Fats should be taken in moderation. Excessive smoking or sexual excitement is injurious. Errors of digestion or menstruation should receive attention. In all cases it is wise to prescribe a saline purgative; in thin subjects a large dose of cod-liver oil at night to act as a laxative is of value. If seborrhoea capitis is present it must receive treatment.

Local treatment.—This is of the greatest importance and requires much patience and perseverance. The affected part should be well steamed night and morning, then soaped over with a shaving-brush to produce an abundant lather. The best soap for this purpose is Eichhoff's camphor sulphur soap. The lathered soap should be rubbed into the skin for a few minutes. As the skin may become intolerant, on one or more nights in the week the soap should not be used, but cold cream applied without friction. After the soap has been used the affected part should be vigorously dried with a rough towel, pro-

vided there is not too free pustulation. The comedones should now be expressed by a comedone expressor. The following lotion may then be lightly applied: Sulphur. præcip. 6 dr., calamin. præcip. 6 dr., aq. rosæ 5 oz., glycerin. 4 dr., eau de Cologne 8 dr., liq. calcis ad 12 oz. If the comedones are very numerous, instead of the expressor a sand soap such as 'maille sand,' or some cheaper substitute such as sapolio, may be used to rub away the upper portion of the comedones once a week.

Where *pustules* have developed they should be opened and evacuated, and as a rule the soap treatment should be continued; in those cases in which for a time the soap causes too much irritation the calamine lotion should be used at first without any soap. If the pustules are very large they must be kept open till they granulate up, a boracic acid (10 gr. to 1 oz.) lotion being used meanwhile.

High frequency currents and the exposure to x rays have given good results in a few obstinate cases.

Internal treatment.— $\frac{1}{2}$ gr. of calcium sulphide in a coated pill three or four times a day, or 20 to 30 gr. sulphur. præcip. in a teaspoonful of marmalade may be given twice a day. In chronic cases liq. arsenicalis in 4 m. doses for five weeks at a time, followed by a two-weeks' course of calcium sulphide, may be of service.

Vaccine treatment.—This method is useful in obstinate cases. A little pus should be collected from an acne spot and smeared on a culture medium. The bacteriologist will then cultivate the staphylococci and prepare the vaccine.

A vaccine prepared from the patient's pus acts much better than a stock vaccine. It is best to commence with 100 million cocci as a dose. Each dose may be given by the mouth with a little milk three hours after food. Further doses may be given at intervals of five to six days.

The second dose may be 150 million cocci. The dose may then be gradually increased to 1,000 million cocci. Four or five doses are as a rule sufficient to arrest the

trouble, but one dose a week should be given for two months or more to prevent the tendency there is to recurrence. (See VACCINE THERAPY.)

ACNE ROSACEA (Rosacea).

The disease is due to the presence of seborrhœa of the scalp. It is aggravated by digestive disturbance, and has some obscure relation with the condition of the nervous system.

Local treatment.—The head should be well washed twice a week (or oftener, according to the extent and stage of the disease) with *sapo mollis* 4 oz., *sp. vini rect.* 6 oz., *eau de Cologne* 2 oz., all the soap being washed away by repeated applications of clean water. The following ointment may be well rubbed into the head each night: *Sulphur. præcip.* 15 gr., *acid. salicyl.* 15 gr., *lanolin* ad 1 oz., the proportions of the sulphur and salicylic acid being gradually increased if necessary. Where greasy applications are disliked a lotion may be tried: *Acid. salicyl.* 2 dr., *ol. ricini* 2–6 dr., *ol. rosmarin.* 10 m., *sp. vini rect.* ad 6 oz. For the face we may try painting with *sulphur. præcip.* 4 dr., *calamin.* 4 dr., *glycerin.* 1 dr., *aq. rosæ* ad 4 oz.; or *ichthyol* 1 dr., *aq. flor. sambuci* 1 oz., may be painted on twice daily. If the dilated vessels are numerous, electrolysis should be employed. The needle attached to the negative pole is introduced into a capillary and a weak current allowed to pass until the blood is coagulated. In some cases we may employ scarification, scarifying the affected part so as to cause obliteration of the hypertrophied capillaries.

When *pustules* are present they must be evacuated and kept clean. If there is much irritation a soothing lotion is of service: *Calamin.* 4 dr., *zinc. oxid.* 4 dr., *acid. boric.* 2 dr., *glycerin.* 2 dr., *aq.* ad 6 oz.

General treatment.—The patient must avoid everything which experience has shown causes any flushing of the face, such as alcohol, tea, spiced meats, curry, and condiments. Violent exertion is harmful, as is undue exposure

to the sun or a fire. The bowels and digestion in most cases require attention. Abnormal irritability of the gastric nerve-endings which is usually present is lessened by antipyrin 100 gr., liq. ext. cocœ 2 oz., tr. aurant. 1 oz., glycerin. 1 oz., in doses of a teaspoonful between meals. Ichthyol in 5 gr. (increased to 10 gr.) doses in capsules late at night and before breakfast is perhaps the most trustworthy internal remedy.

ACROMEGALY.

Treatment with the pituitary gland is useless. Thyroid extract (3 to 5 gr.) has been of service in some cases, but the disease must usually be treated on symptomatic lines.

ACTINOMYCOSIS.

In the early stages potassium iodide in 15 gr. to 20 gr. doses three or four times a day should be given, but unless there is improvement in two weeks surgical measures must be employed. In more marked cases surgical measures must be employed at once. When the jaw is affected it is most important to search for decayed teeth. Infection is prevented by strict cleanliness.

A successful case of *vaccine treatment* has been recorded. Cultures of the patient's streptothrix are made, and an emulsion prepared, .001 mg. of the killed emulsion being given every ten to fourteen days by hypodermic injection.

ADDISON'S DISEASE.

In this disease we cannot do more than lengthen the course and lessen the intensity of the symptoms.

General treatment.—The general health must be maintained as far as possible by fresh air, light but nutritious food, and especially by the avoidance of undue strain or fatigue. All worry and excitement should be avoided. In the first instance it is wise to keep the patient at rest in bed for a week for the purposes of observation, as there is a marked tendency to death from syncope. Further, when any symptom is distressing or asthenia is considerable, the patient should be kept at rest in bed. The medulla of

sheep's suprarenal, given in 5 gr. doses of the dried extract, twice or thrice a day, has been tried, but its effect is not great or lasting. The best drug is arsenic, beginning with doses of 8 m. of the solution, and gradually increasing to 10 m., thrice daily, for several weeks at a time. Strong purgatives should be avoided owing to the tendency to diarrhœa.

Symptomatic treatment.—*Gastric Irritability.*—Milk and lime water, iced champagne, and bismuth. carbon. 15 gr., acid. hydrocyan. dil. 4 m., pulv. tragacanth co. 4 gr., liq. morphin. hyd. 10 m., aq. chlorof. ad 1 oz. If this fails, tr. iod. 1 m., glycerin. 10 m., aq. 1 oz., may be given every two hours till vomiting ceases.

Diarrhœa.—Milk, and tannalbin in 10 gr. doses thrice daily.

Syncope.—Alcohol or sp. æther. 80 m., sp. ammon. aromat. 80 m., syr. zingiberis 1 dr., aq. anethi ad 1 oz. If the symptoms are urgent, strychnine $\frac{1}{50}$ to $\frac{1}{20}$ gr. or ether 1 dr. may be given hypodermically.

ALBUMINURIA.

This symptom occurs in *renal disease* and in *failure of the heart*, and is considered under those headings. When it is due to *discharges from the urethra, prostate, or bladder* it must be treated on surgical lines. *Albuminuria of pregnancy* when slight does not require drugs; when it is copious the case must be dealt with in the same manner as one of acute Bright's disease; and if with careful dieting and rest no improvement sets in, the question of the premature induction of labour must be considered. *Albuminuria due to a febrile attack* requires no special treatment. *Albuminuria due to anæmia* or other morbid condition of the blood is best met by rest, together with arsenic and iron separately or combined. *Albuminuria due to alcoholism* is met by withdrawal of the alcohol and attention to the general health.

Functional Albuminuria may be due to various causes. In the case of women a diagnosis should not be made of this

disorder except after the examination of a catheter specimen. Functional albuminuria always means impaired vitality. When it is slight no special treatment is required beyond careful dieting, with supervision of rest and exercise, and, if necessary, massage. When it is more marked and persistent its cause must be ascertained, if possible, and removed.

It may be due to *sexual excess, masturbation, or mental strain or anxiety*. If it occurs *after exertion* it shows a somewhat impaired action of the heart, and should be met by rest (if necessary in bed) for a time, followed by gentle exercise, such as very short walks, the avoidance of animal food, and the prescription of burgundy or claret, together with ferri et quin. citr. 5 gr., syrup. mori 80 m., inf. calumbæ ad $\frac{1}{2}$ oz. thrice daily, and attention to the bowels. It is often due to *exposure to cold* or to taking cold baths. When it is due to *overfeeding* and congestion of the liver, the bowels should be freely opened by Apenta water 3 to 4 oz. daily, milk and vegetables should be prescribed, and eggs and meat should be avoided for a time. Calcium lactate, 15 gr. thrice daily, may do something to lessen the albumin transuded, but the chief aim must be to remove the cause and to improve the general health.

In all cases the urine should be microscopically examined, and if an abundance of uric acid *crystals* is present, a claret glass of warm Vichy water, or 10 grains of sodium bicarbonate in water, may be given on rising and at bedtime.

ALCOHOLISM (Acute Alcoholic Poisoning).

COMA.—The stomach should be washed out at once. When this has been carried out, the following should be introduced into the stomach before the tube is removed—viz. half a pint of strong coffee and 2 dr. of magnesium sulphate.

If collapse is marked, liq. strychnin. 4 to 6 m. should be given hypodermically and repeated if necessary. Artificial

respiration may be required. The patient should be kept warm.

DELIRIUM TREMENS.—The patient must be regarded as insane and at any time likely to injure himself or others. He must never be left alone for a moment, and he must have a suitable attendant on duty in his room. He should be confined to bed. As a rule, forcible restraint, especially with the strait jacket, does harm, and should if possible be avoided, as in the great majority of cases the attendant, by the exercise of tact, can so humour the patient as to keep him at rest in bed. In most cases all visitors should be excluded. The room should be as free from noise as possible and should be kept in comparative darkness. All furniture &c. likely to be used as weapons should be removed, and the windows should be guarded. The course of the disease is not much influenced by medicines, and our chief indications are to support the strength and to produce sleep. A preliminary hot bath—if the patient's condition permits it—often has a sedative effect. Cold sponging is sometimes useful. In all cases treatment should be commenced by a dose of calomel (5 to 10 gr.).

Food should be given every two hours. It should consist of beef tea, beef extracts, and jellies and milk. The more food that can be taken the better. If necessary, feeding with enemata, or preferably through the nasal tube, must be employed, as it is imperative that the patient should have a sufficient quantity of a sustaining diet until the acute stage has passed.

The question whether alcohol should be given must be decided. In mild cases and in robust individuals alcohol should be withheld. In other patients alcohol must be given, especially in the case of those who are elderly or who have taken large quantities of alcohol for long periods and show symptoms of cardiac failure or pneumonia. In cases where delirium follows on an accident, especially when erysipelas supervenes, free stimulation is often necessary.

In all cases when the pulse is failing, alcohol should be given in conjunction with drachm doses of sal volatile, and, if necessary, strychnine injections (in some cases $\frac{1}{30}$ gr. or more repeated in three hours). When alcohol in large quantities is necessary it is best to give pure whisky (in some cases as much as 10 oz. a day); but in the majority of cases where alcohol is indicated (with the exception of failing pulse), stout 1 to 3 pints meets the requirements and helps to induce sleep.

The induction of sleep is of the first importance. In mild cases the restlessness may be met by 30 gr. to 1 dr. of potassium bromide, combined with tr. capsicum 10 m. every three hours until sleep or quiet is induced. It is often useful to give the bromide together with stout. In more severe cases chloral is the best drug; 15 to 20 gr. may be given every three hours in half a pint of stout till sleep is induced. Chloral, however, should be withheld when the heart's action is weak. In some cases hyoscine hydrobromide $\frac{1}{100}$ to $\frac{1}{50}$ gr. given hypodermically is of service, but it is necessary to be sure that this drug is properly standardised. In some cases morphia is necessary, but it must always be given with caution and should be withheld if there is marked albuminuria present. If given, it should be given hypodermically— $\frac{1}{4}$ gr. every three hours. If after four such doses no effect is produced, more should not be given, but the effect of chloral may then be tried.

Complications such as uræmic convulsions should be treated on ordinary lines. (See URÆMIA, p. 45.)

Convalescence.—As the patient improves a gradual return to diet and exercise may be made. An attempt should be made to persuade the patient to submit to the treatment of chronic alcoholism. (See below.)

ACUTE ALCOHOLISM, STOPPING SHORT OF COMA OR DELIRIUM TREMENS.—The patient should be confined to bed and all alcoholic stimulants should be withheld, unless the patient is very

debilitated or suffers from heart-disease. If there is need to counteract the effect of the alcohol quickly, $\frac{1}{2}$ gr. of pilocarpine nitrate subcutaneously, or the solution of ammonium acetate in 1 oz. doses (every fifteen minutes) will often rapidly produce sobriety. Patients should be given at the outset 5 gr. of calomel, and should be kept on liquid diet, given in small quantities at a time. The gastritis resulting from the alcoholism may make it necessary to wash out the stomach, but as a rule the following mixture is sufficient: Bismuth. carbon. 20 gr., pulv. tragacanth. co. 5 gr., acid. hydrocyan. dil. 4 m., liq. morphin. hyd. 10 m., aq. chloroform. ad 1 oz., thrice daily. With this treatment and regulation of the bowels with blue pill, the attack rapidly subsides. The patient may then be placed on a mixture of acid. nitrohydrochlor. dil. 10 m., liq. strychn. 8 m., inf. gent. co. ad 1 oz., and allowed to resume his ordinary diet and avocations gradually.

DIPSOMANIA.—*In the intervals between the paroxysms* the patient should be treated on the lines laid down under Chronic Alcoholism. If the patient will submit to it, hypnotic suggestion is often of great value.

In a paroxysm the patient should be treated on the lines laid down for the treatment of delirium tremens.

CHRONIC ALCOHOLISM.—In all cases we must endeavour to persuade the patient to give up alcohol absolutely. Sometimes this can be done by hypnotism, but as a general rule it is imperative that the patient should go to an institution or nursing-home accustomed to such cases. The patient should be isolated from his friends and relations. The life should be carefully regulated as to exercise and diet, and the rules laid down should be *rigidly kept*. Everything possible should be done to improve the general health. A course of massage is of great assistance. The bowels should receive careful attention, and a brisk purge (calomel 5 gr.) given at the commencement of treatment. The best form of specific treatment is by means of daturine

or atropine and strychnine injections, together with tonics. Thus we may give the following mixture seven times a day in two ounces of water for three weeks: ext. kolæ liq. 20 m., aur. chloridi $\frac{1}{80}$ gr., tr. capsici 5 m., ext. viburn. liq. 7 m., tr. cinchon. ad 1 dr. Four injections of 5 m. of the following should be given each day for three weeks: Daturin. sulph. 1 gr., strychnine 2 gr., acid. boric. 5 gr., aq. destill. 4 oz. Each patient must receive individual treatment, but the dose of the injection may usually be increased to 10 m. after a few days. The amounts of strychnine and atropine may, after a week or ten days, be gradually reduced, the reduction of strychnine being less rapid than that of atropine.

After three weeks' treatment the frequency of the administration of the tonic may be gradually reduced. At the end of five weeks the patient may as a rule be discharged. He should always abstain from alcohol. Dry ginger ale and 'hop bitters,' which are free from alcohol, are satisfactory substitutes.

ALOPECIA. See BALDNESS.

ALOPECIA AREATA.

In persons under forty years of age this disease usually responds to treatment and in some instances the patches sooner or later are covered with hair without any treatment being followed. If taken early, the disease may be cured in three months, but often two years or more elapse before this occurs. Treatment is important, as it certainly hastens recovery.

General treatment.—Many cases depend largely on nerve strain or general debility; it is therefore important that the patient's life should be regulated, and general tonic treatment adopted. Liq. arsenic. in 5 m. doses is as efficient as any drug in this condition, and may be combined with rest and change of air.

Local treatment.—Properly applied and given with sufficient persistence, liquor epispasticus will, in the majority of cases, effect a cure. The patch of baldness

should be *lightly painted* over once a week with the liquor. It is important to produce a slight redness of the skin and to stop short of an actual blister. Too vigorous applications are painful and do harm rather than good. In addition, the following ointment may be used at first once a day and then twice a day—viz. sulphur 5 per cent., salicylic acid 5 per cent., in 1 oz. of lanoline.

The patient should be warned that the disease is a refractory one and treatment tedious. When treatment with stimulating ointments is unsatisfactory, exposure to the rays of the iron electrode lamp of Kromayer is often of service.

AMENORRHOEA.

Apart from the amenorrhœa due to a vaginal septum, congenital defect in the uterus or ovaries, pregnancy, the period of lactation, or the menopause, the chief indications in most cases are fresh air, abundant rest, nutritious food, and the administration of iron. When anæmia is not marked, massage and arsenic are often of service.

ANÆMIA.

This symptom is produced in many different ways. For the purposes of treatment we may classify it under the following headings :

Acute Anæmia, due to loss of large quantities of blood.

Anæmia due to a definitely ascertainable cause, such as albuminuria, chronic poisoning with impure air, deficient food, syphilis, lead-poisoning, repeated loss of small quantities of blood, septic conditions of the mouth, &c.

Chlorosis, which is possibly due to some form of auto-intoxication dependent on the menstrual functions.

Pernicious Anæmia, which is probably due to auto-intoxication dependent on derangement of the intestinal functions.

ACUTE ANÆMIA. — The cause must at once receive attention and the source of the hæmorrhage, if possible, discovered and controlled. For example, in the hæmorrhage of extra-uterine foetation an immediate opera-

tion will probably be necessary as soon as there has been some recovery from the collapse. In other cases, such as severe hæmatemesis due to cirrhosis of the liver or gastrostaxis, an operation is of no service. The patient should be kept absolutely quiet. Care must be taken also to keep him, and especially his extremities, warm. To counteract the loss of blood and to stimulate the flagging heart it is in many cases imperative to inject considerable quantities of normal saline solution either into a vein or into the subcutaneous tissue. The effect of this is chiefly to stimulate the heart by giving it something on which to contract, and this effect is much enhanced by a preliminary injection of $\frac{1}{100}$ gr. of ergotinine. Injection of the saline solution into a vein is much quicker in effect than injection into the subcutaneous tissue. The latter method is preferable, however, if time is not of urgent importance, or if there is any difficulty about performing the necessary operation of transfusion into a vein. The solution used is 1 dr. of pure sodium chloride dissolved in 20 oz. water. This is sterilised by boiling and rendered alkaline by the addition of a little sodium bicarbonate. The solution should always be of a slightly higher temperature than the body-heat.

Method of injecting into a vein.—A vein (preferably the median at the elbow) is laid bare, with aseptic precautions, by an incision two inches long, and tied at the lower end of the wound. This slight operation is rendered easier if a bandage is tightly tied above the elbow previous to the incision; the bandage may be removed as soon as the vein is tied. The vein is then opened and a glass cannula, provided with a stopcock, introduced and tied in. To the cannula is attached three feet of sterilised rubber tubing, at the other end of which is attached a sterilised glass funnel. The tubing and funnel are then filled with the warm saline solution, and care is taken that all air is excluded from the tubing. The stopcock on the cannula is turned and fluid allowed to run *slowly* into the vein.

As the tube becomes nearly empty the stopcock is closed and the operation repeated until some 80 ounces have been injected.

It is often more convenient to use a sterilised vessel instead of a funnel and to syphon the contents into the vein. Many expedients serve in emergency; thus I have seen the operation performed by means of a penknife, a brass kitchen funnel, some sterilised tubing from a baby's bottle, and a toothpick.

Method of subcutaneous injections.—The best site to employ is the hypochondriac region or the upper part of the thigh. It is usually necessary to inject in two or more places. As the fluid is injected, gentle massage may be employed to ensure its diffusion and more rapid absorption. A wide needle is attached to the rubber tubing of the apparatus described in the preceding paragraph instead of a cannula, and the injection made in the same way, the flow being regulated by the height of the funnel and by pressure on the tubing. Two or more pints of saline may be employed. Injection of saline fluid may also be made into the rectum or directly into the peritoneal cavity.

According to the condition of the patient, these operations may have to be repeated on two or more occasions. They may, if necessary, be combined with injections of 20 minims of camphorated oil. Apart from these measures, we must rely on warmth to the body and hypodermic injections of digitalin $\frac{1}{80}$ gr., together with strychnine $\frac{1}{80}$ gr.

On recovery from the initial shock the patient should be kept at rest and warm. Fluid diet in small quantities may be given every two hours at first, and, if necessary, alcohol prescribed. Gradually more food may be given, but exertion must be forbidden for some days, and it may be weeks. Arsenic and iron should be prescribed after the first few days.

To prevent further hæmorrhage, 20 c.c. of fresh horse serum (or antidiphtheritic serum not more than a month old) may be given by the mouth or rectum once a day for four or five days, or calcium lactate 20 gr. thrice daily may be given. If hæmorrhage returns, 20 c.c. fresh horse serum, or 1 dr. calcium lactate, should be given and repeated in two hours if necessary.

ANÆMIA DUE TO A DEFINITELY ASCERTAINABLE CAUSE.—The cause of the anæmia must be dealt with. For example, if it is due to loss of blood from hæmorrhoids, these must be operated on; if it is due to the drain of albuminuria, this must be dealt with as mentioned under ALBUMINURIA and BRIGHT'S DISEASE; if it is due to lead-poisoning, *see* PLUMBISM. In those cases where no definite cause is ascertainable the treatment should be on the lines mentioned in the succeeding paragraphs.

CHLOROSIS.—The essentials are rest, fresh air, sufficient nourishing food, proper action of the bowels, together with iron in an assimilable form, or, if this fails, some preparation of arsenic, alone or together with strychnine.

General treatment.—If the anæmia is severe, or if the case is not reacting to treatment, absolute rest in bed is essential. In every case it will be found that relapse is rapidly caused by over-exertion or strain. As the patient makes progress gentle general massage may be prescribed. If this does good and progress is satisfactory, gradually increasing amounts of exercise may be taken in exactly the same manner as in the open-air treatment of consumption. In milder cases absolute rest is not essential, but great care should be taken to avoid undue exertion, and in every case an hour's rest in the recumbent position should be prescribed before the midday and evening meal. A continuous supply of fresh air is absolutely essential. The teeth should receive attention, and any defective ones should be made good or removed. A daily swabbing of the teeth

with carbolic-acid solution 1 in 40 or listerine is useful. The diet should be plain and nourishing. Ordinary diet with the restriction of farinaceous food and the avoidance of sugar will suit most cases; but the necessity of proper mastication should be impressed on the patients. Raw or underdone meat is useful. When there are symptoms of indigestion, it is best that the patient should remain in bed for a few days on a purely milk diet, which should gradually be changed to an ordinary diet before any iron preparation is given. If dyspepsia persist, the ordinary remedies for this condition must be prescribed. As improvement sets in, change of air is advantageous.

Medicinal treatment.—The bowels are to be regulated, but purgation should be avoided at the menstrual periods. Iron in *considerable* doses is to be given. Iron should always be prescribed after meals, in a diluted form, and should not be given if there is any gastric catarrh or febrile reaction present. The particular preparation of iron is not of much importance. The essential things are to avoid digestive disturbance, and to give sufficient doses for a considerable time. It is wisest to begin with small doses and to increase them gradually. If headache results, the amount of purgative (preferably magnesium sulphate) should be increased. It is a common thing to prescribe the purgative and the iron together. Thus one pil. aloes c. fe. 5 gr. may be given for one or two days, and the dose then increased according to circumstances. The full dose should be reached as a rule in the second or third week; it should be continued for two months and then gradually lessened. Or, again, the following mixture may be given once a day, and then twice or thrice: Fe. sulph. 1-4 gr., magnes. sulph. 1 dr., acid. sulph. aromat. 10 m., inf. calumb. ad 1 oz.

When iron causes much digestive disturbance it may be given subcutaneously. Thus 0.5 to 1 c.c. of a 4 per cent. solution of fe. ammon. cit. virid. may be injected deeply into the gluteal region every third day. The pain of the injec-

tion may be prevented by the previous application of ice to the selected spot or by the use of a 4 per cent. solution of beta eucaine. In all cases where a purgative is not combined with the iron a morning purgative should be given. A good example is magnes. sulph. $\frac{1}{2}$ dr., sod. sulph. $\frac{1}{2}$ dr., magnes. carb. levis 15 gr., aq. menth. pip. ad 1 oz.

Where iron fails it may be combined with arsenic. Thus acid. arsenios. $\frac{1}{30}$ gr., fe. sulph. 2 gr., ext. gent. q.s., may be given as a pill twice a day. The iron and arsenic may also be given by injection into the gluteal region; 0.5 to 1 c.c. of a solution containing 0.5 per cent. of sodii arsenas and 4 per cent. of ferri ammon. cit. virid. being given every third day. Some cases, especially severe and long-standing ones, will not tolerate iron; liq. arsenicalis should then be given from the first in 8 m. doses. The doses should be gradually increased by 1 m. until the patient is taking 10 m. or more thrice daily. The use of arsenic in these doses should not be continued for more than six weeks. After such a period no medicine should be given for a week, when the 8 m. doses may be recommenced and gradually increased for a further period of six weeks. Strychnine may be usefully combined with the arsenic.

In refractory or recurring cases treatment at a spa, such as Homburg, Schwalbach, or La Bourboule, may be prescribed. The iron waters of Tunbridge Wells, Cheltenham, Spa, and St. Moritz are also useful.

PERNICIOUS ANÆMIA.—In the great majority of cases treatment does much to prolong life and to make the general condition of the patient more comfortable. When fever is present absolute rest in bed is essential. Again in the later stages of the disease absolute rest is necessary. In all cases fatigue must be avoided, and the amount of exercise must cause no strain. As a rule massage does harm. A constant supply of fresh air is invaluable. It is best obtained by the patient lying out

of doors for many hours, suitably covered up, in sunny and congenial surroundings. The more bracing the air the better. The diet should be light and sufficient. It is well to let the patient exercise his own discretion in this matter, provided no digestive disturbance is set up in consequence. Raw meat, well pounded, passed through a sieve and flavoured with pepper, is useful. Ox-bone marrow to the extent of 8 oz. daily for some months is well spoken of.

When sickness is a marked feature all food should be peptonised, a mustard-leaf should be applied to the epigastrium, and bismuth carbon. 15 gr., morphia tartrate $\frac{1}{4}$ gr., acid. hydrocyan. dil. 3 m., aq. ad 1 oz. given thrice daily after food. If this fails, larger doses of morphia or opium should be given.

On the supposition that the disease may be due to the absorption of toxins, especial attention should be paid to the *teeth* and digestive organs. Carious teeth should be removed and the teeth should be well swabbed over twice daily with 1 in 40 carbolic acid. To obtain as aseptic a condition of the stomach as possible, lavage may be employed, or salicylic acid in doses of 10 gr. in cachet may be given twice or thrice daily at the commencement of the treatment. If there is much intestinal putrefaction, small doses of grey powder are useful. Our chief faith must be placed in *arsenic*. This should be given in the form of the liquor arsenicalis. At first 5 m. doses should be given, and these should be gradually increased by 1 m. additions to 15 m., or more, thrice daily. The arsenic should be given for a month or six weeks. It should then be intermitted for a week, and subsequently a further course should be given, commencing with the smaller doses. If the arsenic cause much gastric irritation, it is best given hypodermically; thus the liquor (without lavender) may be given largely diluted with water in 5 m. doses, or 0.5 to 1 c.c. of a 0.5 per cent. solution of sodium arsenate may be injected into the gluteal muscle.

Other preparations, such as the cacodylates, do not give any better results. Iron preparations usually do harm rather than good until arsenic has acted beneficially.

Serum treatment.—Antistreptococcic serum has been given hypodermically with good results, but its use sometimes gives rise to serum rashes and other disturbances. It is best given in 10 to 20 c.c. doses by the rectum every four or five days. Given in this way, unpleasant effects are rare. If fever follow the use of the serum, the intervals between the doses should be prolonged.

ANEURYSM.

Surgical measures in aneurysm of such arteries as the popliteal give brilliant results, but these measures are incapable of application to aneurysms of the thoracic or abdominal aorta. The treatment of intrathoracic or intra-abdominal aneurysm is in the vast majority of cases unsatisfactory, and in most instances all we can do for patients suffering from this disease is to relieve pain and other distressing symptoms.

In the majority of cases of intrathoracic or intra-abdominal aneurysm, moreover, the result of systematic treatment is so doubtful, and its irksomeness so real, that it is not justifiable to ask a patient to submit to any special form which involves complete rest and other restrictions, without a very clear statement of the probable result. If the aneurysm is large, or if arteriosclerosis is general, symptomatic treatment, presently detailed, will give as good results as can be hoped for. If, however, the aneurysm is small, the general condition of the arteries satisfactory, and the patient willing to put up with the inconvenience of absolute rest for three or more months, the following course of treatment may be advised.

Treatment when absolute rest is necessary.—This consists of rest, careful dieting, the use of iodide of potassium and injections of gelatine. The patient is kept in bed and is not allowed to sit up or exert himself

for an instant, though he may be allowed occasionally to shift his position or turn on his side with slowness and deliberation. All mental worry and excitement are avoided. Alcohol and stimulants such as tea are forbidden. Fluids are limited to 20 oz. in the twenty-four hours. Diet is light, and contains a minimum of meat. The bowels are carefully regulated, and constipation is avoided by a saline mixture of magnesium sulphate (80 gr. to 1 dr.).

Iodide of potassium is the most valuable drug in aneurysm. It greatly relieves pain and discomfort. It should be given at first in 10 gr. doses, and then in larger amounts until the frequency of the pulse is increased. The dose should then be diminished to what is just insufficient to affect the pulse, and this dose maintained for four or more weeks. If the potassium iodide is not well borne, strontium iodide should be given a trial. In syphilitic cases mercurial inunctions may be of service.

In addition to the treatment with potassium iodide, injections of gelatine are given in the manner described below—at first two injections a week, and then an injection every second or third day.

Injections of gelatine.—Each injection consists of 3 oz. of a 2 per cent. solution of gelatine in normal saline solution. The solution for each injection should be prepared, carefully sterilised, and sealed by a competent bacteriologist, as fatal results have been recorded from injections contaminated by the tetanus micro-organism. Each injection is given subcutaneously, preferably in the region between the scapulæ or in the abdominal subcutaneous tissue. An injection may be given every second or third day until twenty or more injections have been given. If any injection causes much pain or leads to rise of temperature or other bad symptom, further injections should be withheld for a few days.

If care is exercised, there is no danger from this method; it may be said that it cures few cases, but

it is the most reliable means we have of inducing coagulation within the aneurysmal sac by any specific form of treatment.

Tufnell's method.—The patient is kept at *absolute* rest in bed for three months or longer. A special diet is prescribed. The quantity of fluid is limited to 8 oz. in twenty-four hours—2 oz. of milk or cocoa at breakfast, 4 oz. of water or light claret at the midday meal, 2 oz. of milk or cocoa at the evening meal. The solids are limited to 10 oz. in the twenty-four hours—2 oz. of bread and butter at breakfast, 8 oz. of cooked meat, 8 oz. of bread or potatoes at the midday meal, and 2 oz. of bread and butter at the evening meal.

This method seldom, if ever, justifies the hardship inflicted on the patient.

Symptomatic treatment.—If a patient is in a condition in which complete rest is not likely to be of permanent value, or if he prefer to continue his ordinary life, he should be advised to regulate his life so as to *avoid mental or bodily strain* as much as possible. No fatigue should be allowed: the importance of avoiding strain such as lifting weights or hurrying to catch a train should be emphasised and carefully pointed out. Exercise within judicious limits is, however, of value. *Constipation* should be avoided, and every excess of eating and drinking forbidden.

Apart from these matters, most patients suffering from aneurysm are probably well advised to attend to their business in an ordinary manner.

Potassium iodide should be prescribed in all cases. The initial dose should be 10 gr. thrice daily. This should be rapidly pushed until the pulse rate is increased. The dose should then be diminished to what is just insufficient to affect the pulse. The iodide may be taken for four or five weeks at a time. The courses, with a few weeks' intermission between each, may extend over years. *Relief of*

pain often follows the use of the iodide. If pain persist, $\frac{1}{4}$ gr. morphia and $\frac{1}{160}$ gr. atropine may be given, or opium or belladonna plasters may be applied. Occasionally phenacetin 10 gr., and citrate of caffeine 3 gr., are sufficient to relieve the feeling of discomfort. If pain is anginal in character, amyl nitrite may be inhaled or nitroglycerin given in $\frac{1}{160}$ gr. doses every half-hour. Distressing *dyspnœa* usually requires an inhalation of chloroform : tracheotomy is rarely of service. If there is much *venous distension*, repeated bleedings of 2 to 10 oz. are of value.

When there is much *external pulsation*, or the skin over the tumour is becoming ulcerated, a well-applied elastic support relieves the distress considerably.

ANGEIONEUROTIC ŒDEMA. See URTICARIA.
ANGINA PECTORIS.

TRUE ANGINA.—During the attack all constriction about the chest and neck must be removed, and the patient supported in the position which affords him most relief.

A glass capsule containing 5 m. of nitrite of amyl should be broken in a handkerchief and held under the patient's nose. If this prove ineffectual within two minutes, or is not available, a few whiffs of chloroform should be administered. If the pain still continue, morphia $\frac{1}{4}$ to $\frac{1}{2}$ gr., with atropine $\frac{1}{160}$ gr., should be given hypodermically. A turpentine stupe or mustard-leaf may be applied over the region of the heart. Nitroglycerin may then be given by the method described in the next paragraph. Rest in bed may be necessary for a varying time, even two or three weeks, according to the severity of the attack. This is especially the case if the action of the heart is weak or irregular, and if movement is associated with giddiness or any return of the pain. Attention should be given to constipation or flatulence if present.

Between the attacks.—Undue strain on the heart, or anything, like constipation, which tends to raise the

blood-pressure must be avoided. Patients must be cautioned against any sudden exertion or prolonged effort, as fatal results are often due to these causes. Exercise should be permitted in reason, and it may be said that whatever exercise the patient can take without provoking dyspnoea, or a premonition of an attack, at the time, or prostration afterwards, will be beneficial. A period of rest after meals is necessary, as there is a liability to attacks if exercise is indulged in immediately after meals. Heavy meals should be avoided. Some authorities recommend a minimum of meat, others a minimum of farinaceous food. The best diet, however, is a light diet which does not cause flatulence. Carbohydrates should therefore only be allowed in small quantities. Alcohol should not be given as a rule. If there is much increase of blood-pressure potassium iodide should be given in doses of 10 to 15 gr. thrice daily, together with pil. hydrarg. 3 gr. on alternate nights. If gout is present, vin. colchic. 5 m. may be given in addition. If the attacks are frequent or severe, nitrites must be given, and should always be carried by the patient. Nitroglycerin may be given in $\frac{1}{100}$ gr. doses thrice daily, but it is better that the patient should take $\frac{1}{1000}$ gr. doses more frequently—*e.g.* every half-hour for the first few weeks and then at longer intervals. Sleeplessness is best treated by tepid sponging. If drugs are necessary for this condition, the best drug is morphia $\frac{1}{8}$ to $\frac{1}{2}$ gr. combined with atropine ($\frac{1}{100}$ gr.).

Some forms of angina are especially dependent on vasomotor disturbance. In this group some good results have been obtained by cauterising the nasal septum, as in asthma.

PSEUDO-ANGINA.—This form may be due to functional disturbance, especially in women, or to toxins.

As a rule, general attention to health, combined with a teaspoonful of sal volatile at the time of the attack, is sufficient in the neurotic form. In the toxic form the

cause, whether tea, coffee, or tobacco, must be forbidden, and the patient treated on general lines.

ANKYLOSTOMIASIS.

If ova of the *Ankylostomum duodenale* are found, thymol should be given to expel the parasite. It is important that no oil, butter, alcohol, or strong alkali should be taken by the patient until the thymol has passed out of the body, as these substances allow the thymol to be absorbed, and so may lead to fatal results. The patient must fast for twelve hours, and then thymol, in doses of 15 to 20 gr. in cachet or capsule, should be given every two hours for four doses. If purgation does not take place within ten hours of the last dose, 5 gr. of calomel should be given and be followed, if necessary, by a soap-and-water enema.

Ten days later the fæces should be examined again for ova; if these are present, a further course of thymol is necessary.

The *anæmia* present should be treated on ordinary lines with iron and arsenic. If there is much gastric irritability, morphia in doses of $\frac{1}{12}$ gr., and bismuth carbonate 15 gr., may be given.

Ordinary cleanliness is the only necessary *prophylactic*. The larvæ of the worm are developed in the soil from eggs contained in human fæces.

ANOSMIA.

In many instances, especially when the loss of smell is due to changes in the central nervous system, treatment is without result. In some instances this symptom depends on nasal disease, such as rhinitis or the presence of polypi, which must receive attention. Occasionally it is due to an elongated uvula, and disappears on the removal of this. In neurasthenic cases general treatment of the primary disease will usually benefit this symptom. In cases where the anosmia depends on influenza, hypodermic doses of $\frac{1}{10}$ gr. strychnine should be given once or twice daily, and combined with ordinary attention to healthy living.

ANTHRAX.

CUTANEOUS.—The pustule should be excised thoroughly and the wound swabbed with carbolic acid (1 in 10). 20 to 40 c.c. of Sclavo's serum should be given hypodermically, and this dose repeated in twenty-four hours if necessary. In very severe cases the injection should be given intravenously.

PULMONARY.—Treatment of this form must be purely symptomatic. Sclavo's serum is of little service.

ANUS, ITCHING OF. See PRURITUS.

AORTIC DISEASE. See HEART, DISEASES OF, p. 145.

AORTITIS. See ARTERIOSCLEROSIS.

APHONIA, HYSTERICAL.

One of the two following methods are usually successful in curing this symptom, when combined with the ordinary general treatment of hysteria :

1. A solution of *nitrate of silver* 1 dr. to 1 oz. may be rapidly applied to the larynx with a brush and the patient commanded to speak.

2. The application of the *electric current*. The current must be the *induced* current, and it is essential that the current should be of such a strength that a really painful shock is given. One wire of the battery should be attached to a flat electrode which should be placed on the outer surface of the larynx. The other wire should be attached to a laryngeal electrode mounted on a handle in which there is a contact-breaker. This electrode is inserted into the space between the cords and the current turned on. At the same moment as the shock is given the patient should be commanded to speak.

APHTHOUS STOMATITIS. See STOMATITIS.

APOPLEXY (Cerebral Hæmorrhage, Embolism or Thrombosis).

The surgical treatment of apoplexy by ligaturing the carotids or opening the skull has not met with much success.

The medical treatment depends on the cause of the seizure. *If the diagnosis is not clear, it is wisest to regard the case as one of cerebral hæmorrhage.* Apoplexy in persons over forty is usually due to hæmorrhage; in younger persons in whom there is evidence of cardiac disease there is a presumption in favour of embolism, but embolism is sometimes associated with hæmorrhage; if there is evidence of constitutional syphilis or other cause for thrombosis, the case must be dealt with on that basis.

CEREBRAL HÆMORRHAGE.—A patient may be seen, especially one who has had a previous seizure, in whom there are *premonitory signs* of an attack, such as headache, drowsiness, mental inactivity, or slowness. Such cases require rest, brisk purgation, and occasionally bleeding.

Immediately after the occurrence of an attack complete rest is imperative. The patient should not be moved, if possible, from the room in which the attack occurred, and if he has to be moved for any imperative cause it must be done with extreme care. All pressure round the neck or body must be removed, the clothes being cut where necessary. The shoulders and neck should be slightly raised. It is best for the patient to lie on his side, as this tends to relieve the stertorous breathing. If the case is obviously hopeless the less treatment prescribed the better. If there is high tension, and the patient is vigorous and comparatively young, and there is no evidence of thrombosis or embolism, bleeding to 16 oz. may often do good, especially in the ingravescent type of case. In most cases 10 gr. of calomel or 2 m. of croton oil in 5 m. of glycerine should be placed on the back of the tongue at the commencement of treatment. In old people an enema is probably sufficient. Warmth to the feet is useful, but care is necessary, as burns are not infrequently induced in these cases. The possible necessity of emptying the bladder by means of a catheter should be borne in mind. There is no necessity for food

for the first twenty-four hours by the mouth. Rectal injections of water (two pints or more in twenty-four hours) should be given and the tongue moistened with lemon-juice. No alcohol should be allowed in any case. Probably the application of an icebag to the head is useless.

During the period of febrile reaction.—Astringents such as ergot and tannin are not only useless, but harmful. The patient should still be kept rigidly quiet. The diet at first should consist of three pints of milk in the twenty-four hours. Farinaceous food may be added in a day or two. The bowels should be carefully regulated with magnesium sulphate and an occasional blue pill. If there is much restlessness, tepid sponging may be of service, or bromides in 80 gr. doses may be tried. Opium should not be given. Headache is often relieved by the application of two leeches to the mastoid process. If the heart's action is irregular, stimulants may be given in small quantities, or the effect of 5 m. doses of tincture of digitalis may be tried.

As the patient improves, the return to a fuller diet and to exertion must be very gradual.

If there is much tendency to *contraction of muscles*, the limb should be kept in a favourable position by the use of sand-bags. At the end of the first week massage and passive movements should be employed. If there is muscular atrophy, the galvanic current may be of service. (For the further treatment of hemiplegia, see Hemiplegia.)

If a patient recover from an attack of apoplexy his *future life* must be carefully considered. Excessive strain whether of body or mind is to be avoided. Most patients should be advised to retire from their ordinary business; care must be taken to avoid excitement, straining at stool, and the like. The bowels should act daily; the skin should be kept active by warm baths. Moderation in alcohol and in food is essential. The diet should consist chiefly of white meats, fish, farinaceous food, green vegetables, and ripe fruits; butcher's meat being avoided.

THROMBOSIS OF CEREBRAL VESSELS.—

When coma is marked the initial treatment should be on the lines laid down under Cerebral Hæmorrhage, with the exceptions—(1) purgation should not be drastic; (2) bleeding is inadvisable.

In less severe cases, in addition to rest, the foot of the bed should be raised and the patient kept warm. Stimulants, such as a simple dose of ammonia and ether mixture or a tablespoonful of brandy, may be given during the initial syncope. A dose of castor-oil should be given.

After-care.—*Headache* is relieved by the application of two or three leeches to the mastoid. *Restlessness, or delirium*, is best treated by bromides (80 gr.) to which tr. digitalis 5 m. may be added. Care should be taken to prevent *bedsores*. Nutritious, easily digested, food is necessary, as debility is often marked. Small quantities of alcohol should be given. Sodium citrate should be given in 20 gr. doses every four to six hours to render the blood more fluid. In most cases, whether of syphilitic origin or not, potassium iodide in doses of 5 to 8 gr. thrice daily for a few weeks is of value, but larger doses increase the tendency to thrombosis.

The patient should be kept free from worry and mental excitement. A return to exercise should be made gradually.

EMBOLISM OF CEREBRAL ARTERIES.—

Complete rest is essential. Small doses of cardiac stimulants, such as tincture of digitalis 5 m., should be given if the action of the heart is feeble and irregular. The diet should be fluid, and sodium citrate should be given in doses of 20 gr. thrice daily.

APPENDICITIS.

In all cases *operation* is called for at some period or another. The chief difficulty arises in deciding when to operate. In very acute cases in which peritonitis has supervened an immediate operation is necessary. In

severe cases in which the condition of the patient is obviously becoming worse an immediate operation is also necessary. In mild cases in which the patient's condition is improving, it is best, as a rule, to delay the operation until the temperature has been normal for a week or ten days, and other symptoms have disappeared.

Medical treatment.—The patient should be kept at absolute rest in bed. Neither opium nor morphia should ever be given when appendicitis is suspected until the question of operation has been definitely decided, as morphia and opium often give a misleading sense of improvement. Pain can be relieved to a large extent by hot fomentations to the abdomen, and a water enema given per rectum. Purgatives by the mouth should be avoided. In mild cases, $\frac{3}{4}$ pint of warm saline solution, 1 dr. to the pint, every hour per rectum, is of service. In more acute cases a pint or more of warm saline solution should be injected subcutaneously every hour. If there is much collapse the patient should be kept warm, and the foot of the bed should be raised. In those cases in which it is decided to wait for a few days before operating, the diet should be fluid and should consist chiefly of milk, with 15 gr. of sodium citrate to every 10 oz. of milk.

ARTERIOSCLEROSIS.

Anything which causes increased blood-pressure must be avoided. Thus mental *anxiety*, excessive *mental effort*, and any *muscular exertion* which causes even slight dyspnoea or pain, should be avoided. *Constipation* is most harmful. *Alcohol* should not be allowed unless there is evidence of heart-failure. *Tobacco* should be allowed only in moderation, and not at all if it leads to cardiac irregularity.

When the heart's action is good, the amount of solid and fluid intake should be carefully regulated, and if the patient's weight is excessive its gradual reduction should be attempted. This is best done at Harrogate, Homburg, or Carlsbad. The diet should be simple, mixed, and

moderate in amount, butcher's meat being avoided. Turkish baths are not of great service in this disease. Mercury in the form of blue pills 8 gr. twice a week, or calomel $\frac{1}{4}$ gr. twice daily for four or five consecutive days in each fortnight, is the most useful drug. When *syphilis* is present, potassium iodide in 5 gr. doses, thrice daily, is of service. In *rheumatic* cases salicylates, 15 gr. thrice daily, should be tried. In *aortic atheroma*, nitroglycerin $\frac{1}{1000}$ gr. tablets should be given when pain is present. These may be taken every half-hour at first, and as improvement sets in at longer and longer intervals.

When the heart is failing, the treatment must be that of heart-failure in the first instance.

ARTHRITIS DEFORMANS. See RHEUMATOID

ARTHRITIS.

ASCARIS LUMBRICOIDES (Round-worm).

The best remedy is *santonin*. It should be given after a preliminary purge has taken effect, in doses of 2 gr. to a child of three, and in doses of 5 gr. to an adult. It is best given together with castor oil, but when a child will not take the oil it may be given with syrup of senna. If purging does not take place in eight hours, a further dose of the purgative should be given. The best results are obtained when this treatment is repeated on three successive days. Further infection is prevented by boiling the water used for drinking purposes or for the washing of vegetables.

ASCITES.

In all cases the cause of this condition should, if possible, be ascertained. Treatment should be directed in the first place to the primary cause, such as failing heart, cirrhosis of the liver, tuberculous peritonitis, on the lines indicated under these headings. If such treatment fail to remove the excess of fluid from the abdomen, the abdomen should be tapped in the way presently described. If no cause for the accumulation of fluid is ascertained, the patient should be kept in bed, the intake of fluids should be re-

stricted to 20 oz. in the twenty-four hours and purgative and diuretic remedies should be prescribed. The best purgative is magnesium sulphate (4 dr.), dissolved in as little water as possible and given half an hour before breakfast, a further dose of 4 dr. being given every three hours until a satisfactory action is obtained. A good diuretic is a pill containing 1 gr. of blue pill, 1 gr. of powdered digitalis, and 1 grain of powdered squills; one pill to be given twice or thrice daily. Perhaps the most satisfactory single drug is diuretin in 10 gr. doses thrice daily. Caffein in 3 gr. doses is sometimes useful, or the following mixture may be tried: Potassium acetate 30 gr., spirit of nitrous ether 30 m., spirits of juniper 30 m., infusion of digitalis 4 dr., thrice daily. In certain cases potassium iodide in 20 gr. doses is invaluable. If a couple of weeks' trial of these remedies fail to produce any effect, or if there is much tension, the abdomen should be tapped. Some authorities prefer, more especially in cases of hepatic cirrhosis, that the abdomen should be opened by the surgeon and the fluid allowed to escape freely; others advocate that, in addition to this procedure, the liver and the omentum should be stitched to the abdominal wall in the hope of establishing a new venous circulation; but the general results so obtained are not so satisfactory as to justify the adoption of these measures as a routine procedure.

There is not the same danger as formerly about tapping the abdomen. In most cases, provided asepsis is carefully carried out, the risk is small, but in some instances the rapid withdrawal of fluid leads to syncope which may be fatal. If fluid re-accumulates, the operation may be repeated from time to time.

The operation of tapping.—It is best that the patient should be sitting up, or nearly so, in bed; but if he is weak the recumbent position is best. The *bladder* should be emptied. The abdomen should then be prepared aseptically, and a many-tailed flannel bandage passed be-

hind the back. A fine Southey's trocar, to which a cannula and several feet of rubber tubing is attached, should be used. The site of puncture is in the middle line half-way between the umbilicus and pubes. Before using the trocar, it is necessary to ascertain the presence of absolute dulness at this spot. The spot selected may be frozen with ethyl chloride, or eucaïne may be used. The trocar should be *sharply* plunged in, and then withdrawn. The cannula may be left in position for many hours, and by placing the free end of the tubing in some receptacle on the floor the fluid may be painlessly syphoned off, with practically no risk. As soon as the trocar is withdrawn, the many-tailed bandage should be firmly fastened in such a way that uniform pressure is exerted over the abdomen. As the fluid syphons off, the bandage becomes loose, and so must be re-adjusted from time to time. If there is any faintness, a little stimulant or ether mixture should be given.

After the withdrawal of the fluid, pressure by means of the bandage should be kept up for some days, and the diuretic and purgative treatment mentioned above continued.

ASPHYXIA.

The air-passages must be cleared, and artificial respiration performed, preferably by Schäfer's method. The extremities should be kept warm, and hypodermic injections of strychnine given. After the patient has been resuscitated, he should be kept in bed, under careful observation, as pneumonia and other sequelæ often occur.

ASTHMA (Bronchial).

Much more can be done for the relief, and even cure, of this disease than was the case a few years ago. Sufferers from this disease are always difficult to treat, and are prone to try a constantly changing variety of so-called specifics. In many instances a considerable part of their sufferings is directly due to the wanton use of remedies, and one of our

chief cares must be to avoid the use of drugs as far as possible. Powerful drugs, such as morphia and cocaine, must be employed with much circumspection.

Treatment of an acute attack.—At the commencement of a paroxysm, the patient should be placed in the position which experience has shown affords him most relief.

The body of the patient should be kept warm, especially the extremities. Any immediate source of dusty particles, such as animals, eiderdown quilts, &c., should be removed from the room.

The most efficient remedy is a hypodermic dose of *morphia* $\frac{1}{6}$ gr. with atropine sulphate $\frac{1}{100}$ gr. This may be repeated, if necessary, in two hours. The objections to it are those common to the use of morphia in other diseases, such as the presence of bronchitis or renal inadequacy. The risk of setting up the morphia habit is not great if the remedy is kept in the physician's hands. As a rule, the dose does not require to be increased in subsequent attacks.

The next most efficient remedy is *chloroform*. This should be administered in the usual way by the medical attendant, but only sufficient chloroform to relieve the spasm should be given. If used in this way, stopping short of narcosis, further inhalations may be given at intervals. Both this remedy and morphia sometimes cause sickness or induce symptoms of languor on the following day, which the patient dislikes more than the attack.

Spraying of the nasal mucous membrane with a 2 per cent. solution of cocaine often gives relief: but this remedy must be used with great caution. The fine vapour of adrenalin chloride is sometimes of value, and may be administered in 1 in 1,000 solution by means of an atomiser, spraying the nasal mucous membrane and nasopharynx, or 5 to 7 m. of the solution may be injected hypodermically.

Amyl nitrite inhalations (5 m.) are well spoken of in some cases, or caffein citrate 5 gr. may be given every four hours.

Nearly all asthmatics learn to turn to various forms of *inhalations of the fumes of stramonium and nitrate of potash*. The best commercial forms are, perhaps, Espie's cigarettes and Himrod's powders.

The following formulæ may be of service: *R.* Stramonii foliorum 4 dr., anisi fructus 3 dr., potassii nitratis 2 dr., tabaci foliorum 5 gr.

Sig. A teaspoonful to be placed in a saucer and lighted, and the fumes inhaled.

R. Daturæ tatulæ 3 dr., stramon. folior. 2 dr., cannab. indic. 2 dr., potassii nitratis 2 dr., ol. eucalypt. $\frac{1}{2}$ dr.

Sig. Ignite a teaspoonful on a saucer, and inhale.

Soak a piece of thick blotting-paper in a warm solution of 2 oz. of potassium nitrate in 6 oz. of water. Dry and burn rapidly and in large quantity in the bedroom.

The above inhalations are apt to cause cardiac depression and gastric irritability. They should be used as little as possible, both on this account and because the fact that they give partial relief tends to prevent asthmatic persons from paying sufficient attention to the details of the treatment recommended in subsequent paragraphs.

If bronchitis is associated with the attack it should be treated on the lines laid down under Bronchitis.

Treatment between the attacks.—The chief points in treating a case are—

(1) Remove all sources of irritation from without, such as animals, dust, pollen, smells. (2) Remove all sources of reflex irritation from within, such as are caused by gastric irritability, by uterine disorders, the presence of hæmorrhoids, the presence of disordered conditions of the nose and nasopharynx. (3) General attention to health, and 'hardening' of the mucous membranes. (4) Careful regulation of the diet. (5) Render the nasal mucous

membrane less sensitive to stimuli. (6) The use of medicinal remedies. (7) Climatic treatment.

1. *The removal of all sources of irritation from without which may act on an unduly sensitive nasal mucous membrane.*—Any source of dust, fine feathers, or minute particles of material which are given off, for example, in shaking a blanket or sweeping a carpet, should, if possible, be removed. The most minute investigation into details of this kind is well repaid. Animals are a frequent cause of asthma, and should not be admitted to the house. Any dusty occupation is prejudicial. If possible, woollen or fluffy material should be avoided both on the person and about the house. Many patients who suffer from asthma in certain localities or in particular rooms are affected by the presence of some form of dust or some odour which has no effect upon ordinary nostrils.

2. *The removal of all sources of reflex irritation.*—The presence of flatulent dyspepsia, uterine disorders, hæmorrhoids, and the like may act in several ways—either by rendering the nervous system unduly irritable and sensitive to stimulation, or by inducing reflex hyperæmia of the nose and so starting the asthmatic reflex, or by directly inducing the asthmatic reflex. Each case, therefore, at the commencement of treatment must be most thoroughly investigated, and any form of disease or source of irritation, if possible, corrected.

3. *General attention to health and 'hardening' the mucous membrane.*—The patient should live as regular a life as possible, and should avoid over-strain and undue exertion. Exercise should be prescribed and is especially valuable after the evening meal. The functions of the body should be regulated and constipation guarded against.

The less a patient is 'coddled,' and the more he is inured to open-air conditions of life, the less sensitive will he in time become. When he is in the house, the windows should be kept open both day and night; but he

should be very carefully acclimatised to this method of life. A tendency to bronchitis is usually greatly diminished by an open-air existence. Elderly bronchitics should, however, be subjected to it with very great caution.

4. *Careful attention to diet.*—Meals should be regular, and small rather than large in amount. The breakfast should be a satisfactory one; the midday meal should be the best meal of the day. The evening meal should be at least four hours before the usual bedtime. If possible, the patient should rest for half an hour before each meal, and should walk one to two miles after the evening meal. The majority of asthmatics do best on a diet in which the carbohydrate material and fat are strictly limited. The food should consist chiefly of lean meat, white fish, green non-starchy vegetables. Not more than 8 oz. of toast should be allowed; this may be varied by protene or plasmon biscuits, pulled bread, or well-done oatcake, but at the commencement of treatment no sugar or ordinary bread should be eaten. Alcohol may be taken: claret in moderate quantities, or not more than 2 oz. of pure spirit in the day. Soups and aerated waters and coffee should be avoided, and the quantity of liquid, such as weak tea, hot water, barley-water, &c., should not be more than three pints in the day, but at least two pints should be taken. Liquids should be taken between rather than at meals.

5. *Treatment of the nasal mucous membrane to render it less sensitive to various forms of stimulation.*—When obvious disease of the nose is present, it should be treated on ordinary lines. It must, however, be remembered that the treatment of definite intranasal disease produces lasting relief of asthma in a very small percentage of cases, and that, while temporary relief is obtained in a comparatively large number of cases, yet this form of treatment not infrequently aggravates the condition.

The treatment of apparently healthy mucous membrane.—This, in the hands of competent operators, often

gives good results, which in a fair proportion of cases are permanent. It consists in the application of the electric cautery, at a rather dull heat, to the mucous membrane of the *septum*. The point selected for cauterisation is just in front of the middle turbinal, and a little below the tubercle of the septum. This point should be rendered insensitve by the local application of as little 10 per cent. cocaine and 5 per cent. resorcin as possible. The cautery should be applied with the gentlest possible touch. If too much is done the asthma is sometimes aggravated. One side of the septum only should be done at a sitting. In about a week the other side may be cauterised in the same way. It is best to commence on the left septum, as this is usually the least sensitive. In cauterising either side a second or third time the cautery should be applied to a different spot. In some cases improvement is immediate; in others the cautery has to be applied at intervals of a week, and then at longer intervals, for some months. The method requires to be learnt accurately, and is a tedious one.

6. *The use of medicinal remedies.*—The majority of asthmatics are much relieved by two drugs—namely, *potassium iodide* and *arsenic*. The iodide should be given twenty minutes after food three times daily in 5 gr. doses. In most cases these doses are sufficient; in others the dose may have to be gradually increased to 15 gr. after a week or two. Potassii iodid. 5–15 gr., sp. chlorof. 20 m., sp. ammon. aromat. 15 m., aq. ad 1 oz. is a good mixture. Each dose should be taken with twice its quantity of water. In the small percentage of cases in which iodides cause disturbance, the effect of larger doses and larger dilution may be tried. If these are not well borne, bromide of potassium may be given instead in 10 gr. doses thrice daily. At the end of five or six weeks the iodide should be omitted, and then arsenic in gradually increasing doses should be given. Liq. arsenical. 5 m., tr. aurantii 15 m., aq. ad 1 oz.

thrice daily, or sodii arsenas $\frac{1}{8}$ gr., ext. nucis vom. $\frac{1}{4}$ gr. in pill form twice daily may be given for three weeks or a month. At the end of this time the iodide may be again prescribed.

If *gout* is a marked factor, alkalies and vin. colchic. 5 m. may be added. In *old-standing cases in elderly people* $\frac{1}{4}$ to $\frac{1}{2}$ gr. of a good extract of stramonium is sometimes useful.

7. *Climatic treatment.*—In climatic treatment each asthmatic is a law to himself, and in any advice on this point we must be guided by previous experience, always bearing in mind the points mentioned with regard to dust and odours mentioned above. There is no special climatic advantage in any place when catarrh is not a marked feature, but Mont Doré in Auvergne and Eaux Bonnes or Eaux Chaudes (for nasal cases) are often recommended. When much catarrh is present, the effect of places like Madeira, the Canaries, Bournemouth, Torquay, or Falmouth may be tried.

Vaccine treatment.—In a certain number of cases relief has followed the administration of a vaccine containing 50 millions of Friedländer's bacillus at intervals of a week or so. If this dose gives relief, it may be cautiously increased to 100 millions.

ATHEROMA. See ARTERIOSCLEROSIS.

ATAXIA. See LOCOMOTOR ATAXIA.

BACILLURIA.

If this is present to any marked extent, urotropin 7 gr. should be given twice a day, preferably in cachets and with a considerable quantity of water. If indigestion is set up by the drug, one dose at bedtime should be prescribed. If this drug fails, the effect of vaccine treatment for the micro-organisms present should be tried. (See VACCINE THERAPY.)

BALDNESS.

In young adults this condition is, as a rule, due to seborrhoea, and can be arrested, if not cured, by treatment,

provided that sufficient perseverance is shown, but if the baldness is due to senile change treatment is useless. The general health must receive attention. In all cases the head should be frequently exposed to the influence of fresh air, and confinement in close-fitting ill-ventilated hats avoided. When seborrhœa is the cause, the scalp should be thoroughly washed with *sapo mollis* 4 oz., *sp. vini rect.* 6 oz., *eau de Cologne* 2 oz.

If there is very little irritation the scalp may be washed daily; if there is obvious inflammation the intervals must be longer. It is of the first importance that the soaps should be thoroughly washed away by means of a *douche* or repeated fresh waters. The head should then be dried with hot towels. The roots should be vigorously massaged with the finger-tips, and may then be moistened with *hydrarg. perchlor.* 6 gr., *glycerin.* 1 oz., *aq. rosæ* 2 oz., *aq. destill.* 8 oz., *eosin q.s.* to colour.

This lotion may be allowed to dry, and *thymol* 6 gr., *alcohol absolut.* 2 oz. rubbed in. The hair may now be brushed lightly with *acid. salicyl.* 16 gr., *tr. benzoin co.* 80 m., *essence bergamot* 15 m., *vaselin. liquid.* 1½ oz.

Pilocarpine injections are unsatisfactory.

BELL'S PALSY. *See* FACIAL PARALYSIS.

BERI BERI.

The chief dangers of the disease are those arising from cardiac dilatation or cardiac paroxysms following on paralysis of the *vagus*. As re-infection appears to occur, the patient should be removed from his usual surroundings and from the epidemic area if possible. He should be placed in a clean recently disinfected room. Complete rest in bed is essential. Nutritious food should be given in small quantities, care being taken not to overload the stomach or to cause cardiac embarrassment. The bowels should be regulated by *sodium sulphate* 1 dr. in the morning.

The treatment of the *peripheral neuritis* is the same as that described under that heading. When paralysis

is complete, care must be taken to avoid contracture of the limbs by using sand-bags to keep them in position. When the acute symptoms have passed and the cardiac symptoms, if present, are better, and muscular tenderness has gone, massage and, later on, faradisation should be employed. Strychnine should not be given save in emergency.

If *fluid accumulates* in the thoracic or abdominal cavities, tapping may be required. If much œdema is present in the legs, they should be incised under strictly aseptic conditions.

If there is *heart-failure* tr. digitalis 5 m., potass. acet. 15 gr., sp. juniper. 80 m., inf. scoparii ad 1 oz. may be given, together with drastic purgatives.

In *cardiac paroxysms* amyl nitrite 5 m. should be employed, and, if necessary, venesection.

BILHARZIA.

Preventive measures consist in the sterilisation of all water used for drinking purposes and the avoidance of fresh-water bathing. The treatment of the disease is necessarily symptomatic. Over-exertion is to be avoided. If the rectum is affected, straining should be avoided and purgatives used. For hæmaturia large draughts of barley-water, with boracic acid 10 gr. three times a day, should be given.

BLACKWATER FEVER. See HÆMATURIA.

BLADDER, IRRITABILITY OF.

Any local cause of irritation, such as phimosis, stone, enlarged prostate, or hæmorrhoids, must be dealt with. If the condition depends on the acidity of the urine, the diet must be investigated: meat should be avoided for a time, and also tea, coffee, and highly spiced dishes. The following mixture is invaluable: Liq. potassæ 20 m., tr. hyoscyam. 20 m., ext. glycyrrh. liq. 20 m., aq. ad 1 oz.

If *gout* is present, alkaline waters may be prescribed. It should be remembered that medicines such as potassium

chlorate cause much irritability of the bladder in certain cases.

If the condition is dependent on *nervous factors*, pot. bromid. 15 gr., tr. hyoscyam. 15 m., ext. glycyrrh. liq. 20 m., aq. ad 1 oz. may be given thrice daily. In a few days the following pill, which should be coated, may be substituted: Zinci valerian. 1 gr., quin. sulph. 1 gr., muc. acac. q.s. The general health should receive attention.

BLEPHARITIS (Tinea Tarsi).

It is essential to remove the minute crusts before applying any remedy. For this purpose the eyelids should be carefully bathed with a *warm* solution of bicarbonate of soda 8 dr. in a pint of water until the crusts come *easily* away. The lids should be carefully dried, and hydrarg. oxid. flav. 4 gr. in an ounce of vaseline applied. These measures should be employed at least twice daily, and must be conscientiously persevered with for weeks, till all trace of the disease has gone.

If there is much inflammation, or if the disease is very recent, the hairs should be removed.

General tonic treatment should be prescribed in each case.

BOILS.

General treatment.—In each case careful attention must be paid to the general health. The bowels should be regulated with saline aperients. The diet should be generous but not stimulating. The Spanish onion boiled in an open vessel till tender is credited with a considerable influence in this condition. Alcohol is unnecessary unless many boils are present and suppuration is a marked feature. In the majority of cases vaccine treatment (*vide infra*) gives the best results. The internal administration of sodium salicylates in 15 gr. doses thrice daily is the best medicinal measure. This drug may be given alone or combined with vaccine treatment. Some authorities prefer tonics, such as fe. et ammon. cit. 8 gr., tr. quinin. 30 m., syr. aurant. 1 dr., aq. ad 1 oz., which may be given thrice daily. Sulphide of

calcium $\frac{1}{2}$ gr., in a coated pill, three or four times daily is well spoken of. In some cases a change to the seaside is of value.

Local treatment.—All friction from collar or clothes must be avoided. If possible the centre hair of the boil should be pulled out. If suppuration has not taken place, each boil should be painted with a solution of salicylic acid 20 gr. in collodium flex. 4 dr., which is allowed to dry. This should be done every morning until the boil has disappeared. An alternative is the application of Unna's mercury and carbolic plaster.

Poulticing should never be employed.

If there is definite breaking down, the boil should be opened and treated on surgical lines.

Vaccine treatment.—This should be combined with general measures and tonic treatment. A little pus should be collected from a boil and smeared on a culture-medium. The staphylococci can then be cultivated and the vaccine prepared. Stock staphylococci may be used, but the best results are obtained from the patient's own micro-organism. A dose of 100 million staphylococci should be given by the mouth, three hours after food, in 10 c.c. of saline solution and a little milk. Successively larger doses (150 million, 250 million, 500 million, 1,000 million) may be given at intervals of six or seven days. In the majority of cases there is no necessity to control the treatment by means of the opsonic index, the dose and intervals between the doses being regulated by the clinical conditions. Thus, if improvement occurs, successively larger doses may be given; but if a dose leads to any exacerbation of the condition the next dose should be smaller. The treatment should be continued for a month or so after the disappearance of the boils, as the immunity produced is often short in duration. If the hypodermic method of administration is preferred, the same dosage should be employed, and the doses given at ten to fourteen days' interval.

In the case of boils in the external auditory canal a B.P. solution of perchloride of mercury may be dropped into the external auditory canal twice daily. After each instillation a little cotton-wool, moistened with the solution, should be left in the canal.

BRADYCARDIA. See HEART, DISEASES OF, p. 158.

BRIGHT'S DISEASE.

This section is subdivided as follows: (1) Acute Bright's disease: (a) acute stage; (b) subacute stage, p. 45. (2) Chronic tubal nephritis, p. 46. (3) Chronic granular kidney, p. 47.

ACUTE BRIGHT'S DISEASE.—It is important to remember that two-thirds of the cases of this disease end in complete recovery, and that our efforts must mainly be in the direction of (a) preventing substances being taken which increase the work of the kidney; (b) lightening the work of the kidney by increasing the excretion of fluid by the skin and bowels; (c) flushing out the kidney with bland diuretics.

The patient should be kept in bed between blankets. He should wear a flannel sleeping-suit with long sleeves. The room should be kept at a temperature of 60° to 65° F.

In the acute stage.—(a) *Diet.* No alcohol should be given save in emergencies. In very severe cases it is advisable to cut off all food, and only allow two to three pints of water to be taken for two or three days, but in most cases four to six pints of fluid should be given in twenty-four hours. It is best that fluid should be administered at first every hour, and later every two hours. Of the fluid some three pints should be milk. This is best given diluted with barley-water, kali-water, or ordinary water. Patients readily tire of the milk diet, and it should be varied in flavour. For example, it may be given boiled, after standing on bread and being strained, slightly thickened with arrowroot, in the shape of tea made with milk, as koumiss or buttermilk. Whey may be taken freely.

Solid food and food rich in nitrogenous extracts are inadmissible.

(b) If there is much *lumbar pain* leeches should be applied or dry cupping employed. Hot fomentations are also of service.

(c) *The bowels*.—These should be regulated with a daily morning purge. The best is magnes. sulph. 2–4 dr., aq. ad 1 oz., given every morning fasting. Pulv. jalap. co. to 1 dr. is useful, or the following may be tried: Potassii tart. acid. 2 dr., sod. tartarat. 10 gr., tr. aurant. 15 m., syr. aur. 80 m., aq. destill. ad 1 oz.

Calomel as a rule should be withheld, but a single dose (5 gr.) may be given at the commencement of treatment.

(d) *Flushing the kidneys*.—As a rule, the fluid diet and the diuretic and diaphoretic mixture mentioned in the next paragraph meet all the requirements. If the action of the heart is feeble, or if the urine is extremely scanty, tr. digitalis 5 to 10 m., or 1 oz. of the infusion may be added.

(e) *The skin* should be made to act. A useful diaphoretic is potass. acetat. 20 gr., potass. bicarbon. 10 gr., liq. ammon. acet. 2 dr., tinct. limonis 10 m., aq. ad 1 oz., taken every six hours. This mixture is useful in another way, as it is held by some authorities that if the urine is kept alkaline during the first week of the acute stage, the danger of uræmia is considerably lessened.

In severe cases, or in cases in which the œdema progresses in spite of treatment, more active measures must be adopted. Heat is much more certain in its action than are diaphoretics. The most convenient method of applying it is by means of a *hot-air bath*. A large spirit-lamp, well protected, is connected with a metal tube bent at right-angles and of a suitable length to pass well under the bedclothes at the foot of the bed. The bedclothes are raised above the lower portion of the patient by means of a cradle, but are closely tucked round his neck. The air should be heated for half an hour. During this half-hour the patient

may drink freely of barley-water or whey. After the bath the patient should be rubbed dry and placed in warm dry blankets. The effect of the heated air is much enhanced by the previous administration of a hypodermic injection of pilocarpine nitrate $\frac{1}{16}$ to $\frac{1}{8}$ gr. Two doses of $\frac{1}{16}$ gr. at a quarter of an hour's interval are less depressing, though less efficient, than a single larger dose. Pilocarpine should not be given unless the simple application of heat fails. It must be given with care, and should be withheld if there is notable cardiac weakness. The hot-air bath may be given daily, or even oftener, if uræmia is threatening, or if there is extreme anasarca.

Another method of applying heat, especially in cases of emergency, is the following: A large vessel, such as a hip-bath, is half filled with boiling water, in which two or three ounces of mustard may be stirred. A large thick blanket is thrown in, and after a few minutes well wrung out. The blanket, as hot as possible, should be immediately wrapped round the patient's body, his face and neck alone being free. The patient should lie on a mattress, and be well covered with other blankets until a profuse perspiration occurs. He is then rubbed dry and replaced in warm dry blankets. As in the other method, he should drink freely, and, if necessary, pilocarpine should be administered.

A poor man's bath may be made by filling a number of strong glass bottles, such as soda-water bottles, with very hot water, drawing over each a woollen stocking squeezed out of hot water, and placing them alongside the legs and body of the patient.

As a rule, the anasarca begins to diminish after some weeks, and it not infrequently disappears rapidly after it has remained stationary for some time, without any apparent cause. It is seldom necessary to incise the legs, but if it is, the incisions should be made with aseptic precautions.

The ascites may require tapping (*see* ASCITES), or fluid may have to be withdrawn from the pleural cavities if dyspnoea is urgent (*see* PLEURAL EFFUSION).

Complications.—*Vomiting* is best checked by lavage of the stomach with warm, slightly alkaline water. The following may be of service: Acid. hydrocyan. dil. 4 m., sodii bicarb. 20 gr., liq. bismuth. 80 m., aq. chloroform. ad 1 oz., to be taken thrice daily with a dessertspoonful of lemon-juice whilst effervescing.

Diarrhoea does good unless excessive, when it may be checked by tannalbin 10 gr. thrice daily.

Headache.—This is often relieved by hot tea, leeches to the mastoid process, or local applications. The effect of nitroglycerin $\frac{1}{100}$ gr. or citrate of caffeine 4 gr. may be tried if these measures fail to relieve this symptom.

Uremia (restlessness, convulsions, or coma).—The tongue must be protected. A powerful purgative should be placed on the back of the tongue—croton oil 1 m., or pulv. elaterini co. 2 gr. Pilocarpine nitrate $\frac{1}{16}$ gr. should be injected, and a hot-air bath or pack for twenty minutes prescribed. If the patient is conscious, food should be withheld, and water or hot weak tea given freely; if the patient is unconscious, one or two pints of saline solution should be injected into the rectum, subcutaneous tissue, or a vein.

If convulsions or coma continue and the patient's blood-tension is high, the effect of venesection to 12 oz. should be tried, and, if necessary, chloroform may be administered. If the patient remains restless, $\frac{1}{15}$ gr. morphia should be injected.

In the less acute stages the *diet* may be gradually changed; but if the urine becomes scantier, the albumin more marked, the oedema greater, or the pulse more tense, it is doing harm, and milk must again be substituted. Farinaceous food, such as toasted bread, macaroni, rice, tapioca, may be added at first; then, in succession, light

vegetables, subacid fruits, or a little fruit-jelly. Later we may give the more delicate forms of fish, a little chicken or white game, the yolk of an egg, grilled bacon. Abundance of distilled water or imperial drink (potass. tart. acid. $1\frac{1}{2}$ dr., cort. limonis recent. $\frac{1}{2}$ oz., sacch. alb. $1\frac{1}{2}$ – $2\frac{1}{2}$ oz., dec. hordei 2 pints, after straining) should be taken. *Alcohol* should still be avoided.

The *morning purgative* should be continued, and an iron mixture such as the following may be given with advantage: Fe. et ammon. citr. 5 gr., potassii citr. 4 gr., tr. scillæ 5 m., sp. æth. nitr. 30 m., syrup. aurant. 30 m., aq. destill. ad 1 oz., thrice daily after meals, or the purgative and iron may be combined: magnes. sulph. 1 dr., tr. aloes 1 dr., tinct. fe. perchlor. 10 m., inf. calumbæ ad 1 oz., being given at bedtime and on rising.

As the patient progresses he may gradually be allowed to sit up, and then to leave his bed. At first extreme caution is necessary to guard against chill. The room must be kept at 60° to 65° F., and *warm woollen garments* must be worn. When fit to go outside the house the patient must be well wrapped up. At first *exercise* should be passive. As soon as possible the patient should leave for a mild *climate* such as Devon, the Riviera, Madeira, Algiers, Egypt, India, or, best of all, the West Indies. He should be warned that he is prone to have a return of his disease if he does not protect the surface of the body from chills, ensure a daily action of the bowels, restrict the nitrogenous intake, and avoid violent exertion and alcohol. An occasional Turkish bath is advisable.

CHRONIC TUBAL NEPHRITIS (large or small White Kidney).—If the patient is able to go about he must be warmly clad and take every precaution against a chill. The *skin* must be kept in good condition by a daily tepid bath or sponging. A Turkish bath every ten days is of value. The use of diaphoretics is not

indicated. The winter months each year should be spent in such places as Madeira, Algiers, the West Indies, or Devonshire.

The *bowels* should be regulated with care.

The *diet* should consist of farinaceous food, fish, vegetables, and fruit, together with milk, butter, cream, and other fats.

Any *medicine* directed solely to diminishing the amount of albumin is useless. Benefit results from occasional courses of tr. digitalis 10 m., tr. fe. perchlor. 10 m., acid. phosphoric. dil. 10 m., aq. chloroform. ad 1 oz.

If **acute or subacute symptoms arise** the patient must retire to bed and be treated on exactly the same lines as are laid down for the treatment of acute nephritis.

CHRONIC GRANULAR KIDNEY (Interstitial Nephritis).—There is more to be done by careful management in this disease than might have been expected, considering that the disease cannot be cured and has no tendency towards recovery. Any known cause of the disease must be removed or kept in check as far as possible, such as gout, chronic alcoholism, lead-poisoning, excessive eating, and especially severe mental work without exercise. In the quiescent state the nitrogenous elements of *diet* should be reduced to the lowest amount compatible with health; but some meat may be given, for if uræmia threaten on one side, anæmia is to be feared on the other. A good rule is one meal containing fish, one meal containing fresh underdone meat, and one meal containing neither. Any form of farinaceous food may be given with fish, the white meats (save pork or veal), vegetables and fruit, and fats. Fluid, such as water, should be given in free quantities. *Alcohol* should be avoided or given in small quantities well diluted, gin being as good a form as any. Highly concentrated soups or meat extracts should be forbidden. Milk may be employed freely, but patients in the quiescent stage do not do well on a purely

milk diet. The *clothes* should be warm. The *skin* should be protected from cold and from cold baths. Warm or tepid sponging and an occasional Turkish bath should be prescribed. A warm and dry *climate*, such as Northern Africa, the West Indies, Torquay, or Falmouth is to be preferred. *Exercise* in moderation is of value, the best form being slow walking.

Medicinal treatment.—In the quiescent stage no medicine need be given unless there be some special indication. The bowels should act daily, and if necessary sulphate of magnesia should be given. If the urine is over-acid, the following is of service instead of the morning draught of magnesia: Potassii tart. acid. 2 dr., sod. tartarat. 20 gr., tr. aurant. 15 m., syr. aurant. 80 m., aq. ad 1 oz. Iron should only be given when there is obvious anæmia, and it should be combined with a purgative. Fe. tartarat. 8 gr., liq. arsenicalis 8 m., aq. chloroformi ad 1 oz., may be prescribed twice daily, together with a morning draught of a saline purgative.

Complications.—*Diarrhœa*, if present, must receive instant attention. If tannalbin 10 gr. is unavailing, opium may be given in this form of kidney trouble—*e.g.* Tr. kino 80 m., tr. opii 5–10 m., tr. zingib. 15 m., mist. cretæ ad 1 oz. every four hours. Acetate of lead tends to irritate the kidneys, and should be avoided.

Dropsy.—The patient should be in bed. The diet should consist of milk. Tr. digitalis 10 m., tr. fer. perchlor. 10 m., acid. phosphor. dil. 10 m., inf. calumbæ ad 1 oz. should be prescribed thrice daily for a couple of weeks at a time, together with a sharp daily purgative. If the dropsy persist or increase, it must be treated with hot-air baths &c., as is mentioned under Acute Bright's Disease, but care must be exercised if the action of the heart is weak.

Headache.—A sharp purgative should be given at once, together with liq. trinitrini 1–2 m., aq. ad 1 oz.; or caffè.

citr. 4 gr., liq. trinitrini $\frac{1}{2}$ m., sodii benz. 8 gr., syr. aurant. 15 m., aq. ad 1 oz., may be prescribed every four hours.

Hæmoptysis or *hæmaturia* calls for rest, milk diet and moderate purgation by salines.

Increased tension of pulse may be reduced by less stimulating diet, rest, and moderate purgation.

Renal asthma indicates the near approach of uræmia. Amyl nitrite 5 m. inhalations are of service. Apart from this, free purgation and sweating should be induced as in uræmia.

Uræmia and *vomiting* should be treated as in acute Bright's disease (see p. 45).

Lardaceous disease (see LARDACEOUS DISEASE, p. 178).

BROMIDROSIS. See PERSPIRATION, EXCESSIVE.

BRONCHIECTASIS.

Surgery has failed in this disease. Our chief efforts must be (a) to improve the general health; (b) to assist in removing the accumulation of fetid secretion.

General health.—The patient should, as far as possible, live an open-air life, rest for an hour before meals, and avoid undue fatigue. He should be warmly clad and should avoid 'chills.' In the winter he will do best in places like Bournemouth, Torquay, and Falmouth, or Madeira. An occasional tonic is of value. Cod-liver oil should be given unless it disagrees. It is best given at night—*i.e.* after retiring to bed—and the dose should be gradually increased.

The removal of secretion.—Creosote capsules in 1 to 8 m. doses thrice daily after meals and an occasional course of potass. iodide (5 to 7 gr.) are the best remedies. Whenever the secretion is considerable the creosote bath described below should be given for six weeks, and a shorter course should be prescribed every two months.

Creosote bath.—One of the best methods of getting rid of the fetid expectoration is exposure to the fumes of commercial coal-tar creosote. It may be administered in a

small room made as air-tight as possible, all chinks and holes in the walls being stopped up with cotton-wool. As the fumes tend to irritate the eyes and nose, and the smell of the fumes tends to cling about the hair and clothing, the patient should protect the eyes with a pair of watch-glasses, framed in sticking-plaster, plug the nostrils with cotton-wool, and wear a towel pinned over the head and a loose dressing-gown over the clothes. The room is easily filled with creosote vapour in the following manner: In the centre of the room a spirit-lamp is placed on a pedestal, and over the lamp a flat open dish, into which the creosote is poured. At first only a gentle heat is applied to the dish. The patient sits in the chamber and inhales the vapour. As he becomes accustomed to the inhalation more heat may be applied, until the chamber is filled with the vapour. At first the patient should be subjected to the treatment for half an hour; in the course of a day or two he is able to employ it without inconvenience for an hour or an hour and a half. The treatment may be carried on every day for six weeks.

BRONCHITIS.

ACUTE BRONCHITIS.—Acute catarrhal inflammation of the large and medium sized bronchial tubes is often present as a complication of heart-failure, enteric fever, influenza, measles, whooping-cough, asthma, and malaria. In such diseases the treatment is practically the same as in acute bronchitis when treated as a separate disease. Acute catarrhal inflammation of the small bronchial tubes, or capillary bronchitis, is invariably associated with some bronchopneumonia, and its treatment is therefore discussed under that heading.

In mild cases of acute bronchitis involving only the larger tubes, and in which the temperature is not above 99° to 100° F., the patient should be careful not to expose himself to undue cold or to sudden changes of temperature.

A hot bath at bedtime, with whisky and hot water and 10 gr. of pulv. ipec. co. should be given at the onset. During the day vin. ipecac. 10 m., liquor. morphin. 5 m., mist. amygdal. ad 1 oz., may be given every six hours. It is important in the case of patients who insist on going out of the house that inhalations and sweating mixtures should not be given, as they increase the susceptibility of the mucous membranes to the effects of cold. As the cough improves, the following mixture may be substituted and given for a couple of weeks or longer : Fe. et ammon. citr. 10 gr., pot. iod. 3 gr., pot. bicarbon. 15 gr., inf. gent. co. ad 1 oz. twice daily.

In more severe cases in which there is fever, distressing cough, and a feeling of rawness in the chest, the patient should be confined to bed, or at any rate to his room. It is a mistake to tell the patient to lie down all day : he should be well propped up by pillows. The room should be large, and should have an open fireplace. Care should be taken that the room is well ventilated. It should be kept at about 60° F. No gas or lamp contrivances which give off unwholesome products of combustion should be allowed, whether for lighting or heating purposes. If electric light is not available, candles should be used. The bed should be fitted with light curtains, but the closed tents so commonly used only render the difficulty of respiration greater. The bedclothing should be warm but light. The patient should wear a light flannel gown. The air should be kept moist. For this purpose a bronchitis-kettle or an ordinary kettle with a couple of feet of metal tubing may be kept boiling on the fire ; a teaspoonful of the tincture of belladonna and of the compound benzoin tincture may be added to the water in the kettle. The diet should consist of warm fluids only ; two pints of milk and one pint of broth daily in five-ounce feeds every two hours. In gouty subjects peptonised farinaceous foods made with water should replace one pint of milk. . Plenty of warm

home-made lemonade may be taken. This should be mixed with kali water before being swallowed. Patients, when asleep, should be roused every two to three hours in the acute stages, as this facilitates expectoration. As the case progresses, oysters, fish, and farinaceous foods may be given. *Stimulants* should not be given unless specially indicated.

Medicinal treatment.—A large poultice of linseed and mustard should be applied to the front of the chest, and when the skin is thoroughly red replaced by cotton-wool. A further poultice may then be applied to the back. These poultices may be renewed from time to time. Calomel 5 gr. should be given, and may be followed in six hours by 1 dr. of effervescing magnes. sulph. B.P. The bowels should be regulated daily, and everything which interferes with the movement of the diaphragm, such as flatulence, corrected. If the case is seen early and the cough is harassing, subsequently unaccompanied by much expectoration, the following may be given *for twenty-four hours*: Antimon. tartr. $\frac{1}{2}$ gr., liq. morph. tart. 10 m., vin. ipecac. 10 m., aq. camphor. ad 1 oz., every three hours. At the end of twenty-four hours this may be replaced by the following: Potassii citr. 20 gr., liq. ammonii acet. 4 dr., vin. ipecac. 10 m., aq. chloroformi ad 1 oz., every six hours; or if the expectoration is very viscid, by ammon. chlorid. 10 gr., vin. ipecac. 5 m., syr. toltan. 30 m., mist. ammoniaci 2 dr., aq. anisi ad 1 oz., every six hours. If the cough is out of all proportion to its results, heroin $\frac{1}{2}$ gr. may be given in the form of a pastille, or morphia hydrochlor. $\frac{1}{8}$ gr., or tr. camph. co. 20 m. may be added to the prescription. If progress is satisfactory, in three or four days the following may be substituted for the above mixtures: Pot. iod. 2 gr., vin. ipecac. 5 m., potassii bicarb. 15 gr., syr. aurant. 30 m., inf. gent. co. ad 1 oz. When convalescence is established, fe. et ammon. cit. 10 gr., pot. iod. 3 gr., pot. bicarb. 15 gr., inf. gent. co. ad 1 oz. may be given.

In children, if there is much difficulty in expectorating the phlegm, a drachm of ipecacuanha wine may be given every fifteen minutes till vomiting is established.

If the bronchitis is largely dependent on *failure of the heart*, or if this supervene, oxygen inhalations should be given, together with the following : Tr. digitalis 10 m., ammon. carb. 5 gr., syr. tolu. 80 m., aq. camphor. ad 1 oz., every four to six hours. Liq. strych. hydrochlor. 8 m. may be injected every four to six hours. If suffocation threaten, venesection should be performed to 10 to 15 oz., or leeches (six to twelve) may be of service.

If *sleep* is urgently required in spite of the administration of cardiac tonics, 1 to 2 dr. paraldehyde, or sulphonal 30 gr., or, if it is a matter of life and death, a hypodermic of $\frac{1}{8}$ to $\frac{1}{2}$ gr. morphia may be given. The patient should be awakened to cough every three hours.

As *convalescence* progresses, the patient should leave his bed, and should move about the house for some days before venturing out. Great care should be exercised against exposure to further chill, as relapses are common. As soon as it can be safely allowed, the patient should have a change of air to a mild climate, such as may be found in places like Bournemouth, Torquay, and Falmouth.

In view of the tendency to further attacks in subsequent years, every means should be taken to make the bronchial mucous membrane less susceptible to the invasion of micro-organisms. There is no better way of doing this than by *gradual* acclimatisation to an open-air life.

CHRONIC BRONCHITIS.—The chief indications are the treatment of the cause of the disease and climatic treatment. If the *cause* is exposure to variations of temperature or to dust and irritating particles, the patient should if possible change his occupation, and if necessary his environment. If the condition is due to cardiac failure and long-continued congestion of the bronchial mucous membrane, our chief aim is to strengthen the action of the

heart (*see* HEART, DISEASES OF, p. 150). If renal disease is the cause, the case should be treated as one of mild uræmia (*see* BRIGHT'S DISEASE, CHRONIC). If asthma or emphysema is the cause, we must treat these conditions (*see* ASTHMA and EMPHYSEMA). Gout is a common cause of bronchitis, and general measures for its treatment must receive attention (*see* GOUT).

Chronic bronchitis requires comparative freedom from work and exposure to sudden variations of temperature. Patients should, if possible, become acclimatised to open-air conditions during warm weather, and these conditions should be kept up when colder weather supervenes. If this is impossible, as it frequently is in cases of some standing, the patient should be confined to the house in cold or damp weather and after sunset. *Climatic* treatment is of value. The winter and early spring should be spent at such places as Torquay, Bournemouth, Falmouth, Hastings, Madeira, Tenerife, Egypt, Southern California, Florida, the Azores, or the West Indies. In the summer Mont Doré and Royat are of service.

The *diet* should be light, consisting of fish, tender mutton, chicken, game, eggs, with farinaceous food in moderation. Flatulence and constipation are to be avoided. The chief meal should be in the middle of the day, the evening meal being a light one. *Stimulants* should be avoided unless there is a definite indication for them. If there is much cough in the night, some warm milk and rum may be taken.

Medicinal treatment.—In intercurrent, acute, or subacute attacks, the treatment should be carried out on the lines detailed under Acute Bronchitis (*see* above).

For general routine purposes a mixture such as *fe. et ammon. cit.* 10 gr., *pot. iod.* 8 gr., *pot. bicarb.* 15 gr., *inf. gent. co. ad* 1 oz. is of service. *Liq. arsenicalis* may be given from time to time in 4 to 5 m. doses. If the cough is dry a decision must be made whether the cough is in excess or

whether expectoration should be stimulated. In the former case we may give pot. iod. 8 gr., pot. bicarb. 15 gr., liq. morph. 10 m., aq. chloroform. ad 1 oz. three or four times a day, or glyco-heroin 1 dr., or a sedative linctus such as liq. morph. tartr. 8 m., acid. hydrocyan. dil. 1 m., oxymel scill. ad 1 dr. If lividity or drowsiness result, these sedatives must be withheld. If expectoration is to be stimulated we may give ammon. carb. 4 gr., tr. scillæ 20 m., inf. serpentariæ ad 1 oz. four times daily; or, if gout is marked, potassii iodidi 8 gr., pot. bicarb. 15 gr., ammon. carb. 4 gr., aq. camphor. ad 1 oz. thrice daily. If expectoration is profuse, morphia and other sedatives should be avoided. Tar is useful in such cases, and the following may be given: Liq. picis aromat. 20 m., syr. pruni virg. 80 m., syr. codein. 80 m., inf. cascarilla ad $\frac{1}{2}$ oz., thrice daily. In chronic bronchitis of the aged, ammonium chloride in 5 gr. doses may be included in the prescriptions, its taste being suitably disguised.

If *asthmatic attacks* supervene, the nasal mucous membrane should be cauterised (*see* ASTHMA). An ether and ammonia mixture—*e.g.* sp. ætheris 80 m., sp. ammon. aromat. 80 m., tr. aurant. 15 m., inf. aurant. ad 1 oz.; or a mixture containing ext. stramonii $\frac{1}{4}$ gr., ext. glycyrrh. 2 gr., pot. iod. 8 gr., æther. chlor. 5 m., aq. ad 1 oz. may be of service.

BRONCHOPNEUMONIA.

Very little can be done for the disease itself, but much can be done for the patient. In the early stages the chief dangers are the intensity of the infection, which is best met by alcohol or strychnine; and the embarrassment of the respiration and circulation, which is best met by counter-irritation to the chest and heat to the extremities. During the later stages the chief danger is from exhaustion. Consequently the nutrition of the patient must receive the most careful attention from the commencement; all unnecessary medication, especially the free use of expectorants, should be withheld for fear of upsetting digestion. Opium in most cases should be withheld.

Room.—The child should be kept in a large well-ventilated room, with an open fire, at a temperature of 60° to 65° F. Infants should be kept in the nurse's arms for some part of the day. In all cases a frequent change of posture should be insisted upon, and the child should not be allowed to lie on its back for hours. The air of the room should be kept moist by means of a steam-kettle. Light curtains should hang at the side of the bed, but the ordinary tent should be avoided, as a free supply of pure air is essential.

At the outset calomel $\frac{1}{2}$ to $\frac{1}{4}$ gr. should be given every hour until an action of the bowels occurs; and care should be taken to ensure a daily action. Poultices should not be used. In most cases counter-irritation of the chest from time to time at the commencement, by means of mustard-paste, does good.

[Take one part powdered mustard and six parts of wheat flour, mix with lukewarm water and spread between two layers of muslin. Sufficient should be used to envelop the whole chest. The poultice should be removed when the skin is thoroughly red, usually in about five minutes.

The child's chest should then be covered by a cotton-wool jacket.]

Diet.—This should consist chiefly of milk, broths, and egg-albumin. Egg-white is most acceptable in cold water with a little sugar, and serves as a useful medium for the administration of stimulants. In infants the nursing times should be shorter, and water (plain boiled water, Vichy, or Apollinaris) should be given freely with a spoon between feedings. If the infant refuses food it should be fed by a stomach-tube, the stomach being first washed out. In all cases the feedings should be at regular intervals of about three hours, and only water given between these. In older children the milk should be diluted with lime-water, or partially peptonised. Children who do not take milk readily may have beef-tea, broth, gruel, or koumiss. Ice-

creams and jellies so frequently given should be forbidden. Fruits may be given, but not within two hours of a milk feeding.

Stimulants.—These are required in all cases of secondary bronchopneumonia, and in a large proportion of primary cases. They are indicated when the pulse is weak, compressible, rapid, and irregular. Whisky or brandy is best; champagne may be substituted when these are not well borne. The dose should be regulated by the age and condition of the patient. Half an ounce may be given daily to an infant of one year, but it is rarely advisable to give more, save for a few hours at critical periods. For infants the brandy should be given in water, and should be diluted at least eight times. For children four years old, double the quantity of brandy can be given.

In nearly all cases strychnine should be combined with the alcohol. For infants a year old $\frac{3}{16}$ gr. may be given every three hours.

Medicinal treatment.—The cough is best relieved by inhalations. They may be given by means of the steam-kettle for fifteen minutes at a time, four to twelve times a day. In the early stages lime-water acts best; later creosote may be added. Expectorant mixtures as a rule are not indicated. If there is much rattling in the tubes and the colour is bad, we may give ammon. carbon. $\frac{1}{2}$ gr., vin. ipecac. 5 m., glycerin. 20 m., aq. carui ad 1 dr. to a child eighteen months old. *Oxygen* is invaluable in acute conditions. If the secretion is very abundant and the cough feeble, 1 dr. of vin. ipecac. may be given as an emetic every fifteen minutes until it produces its effect, but the use of emetics is to be avoided where there is much prostration or stupor. When the cough is incessant and not relieved by inhalations, codeine $\frac{1}{16}$ gr., or heroin $\frac{1}{16}$ gr. may be given every four hours to a child one year old.

Nervous symptoms such as restlessness are best met by tepid or cold sponging; if severe, the treatment with cold

pack or bath, mentioned in the next paragraph, may be prescribed.

In hyperpyrexia—that is, a temperature over 105° F.—cold in some form is needed. In infants the *cold pack* is best. The child should be stripped and laid on a blanket. The entire trunk is then enveloped in a small sheet wrung from water at 100° F., and the whole of the outside of this rubbed with ice. In older children a stimulant should be given, and the child placed in a bath pleasantly warm, which is gradually reduced to 80° F. The peripheral circulation should be maintained in the bath by friction, and the application afterwards of heat to the extremities. The bath should be repeated if restlessness or twitching or high fever return.

Collapse with cyanosis.—Alcohol and strychnine may be given freely for a few hours. Oxygen and a hot mustard bath should be ordered. Four or five tablespoonfuls of powdered mustard should be mixed with one gallon of tepid water. To this should be added five gallons of water at 100° F. The bath may be gradually raised to 105° if desired, but should not last more than ten minutes. It may be repeated in an hour. 1 to 8 m. of 1 in 1000 adrenalin solution hypodermically is often of great value.

Convalescence.—Great care is necessary, as relapse is extremely common if the return to ordinary life is not made with extreme care.

Protracted cases.—When physical signs remain, but the fever has gone, a change of air will often produce a cure. In winter or spring the child should be removed, if possible, to a warm climate, and in summer to the mountains. The child should be kept in the open air as much as possible. Tonics should be given in addition, cod-liver oil and the iodide of iron being best.

CALCULUS. See STONE IN KIDNEY.

CANCERUM ORIS. See STOMATITIS.

CATALEPSY.

The patient should be aroused by dashing cold water over the head and face. If this fails, a strong induced current should be passed through the arms. A pinch of snuff may be effectual. Vomiting induced by $\frac{1}{10}$ gr. of apomorphine hypodermically may succeed in arousing the patient.

When the attack has passed off, ext. valerian. 2 gr., ext. cann. indica $\frac{1}{2}$ gr., pil. asafetida 3-4 gr. may be given as a pill twice a day. If further attacks ensue, the patient should be removed from his surroundings. Much benefit often follows a course of Weir-Mitchell treatment (*see under NEURASTHENIA*).

CATARRH. *See* COLD.

CEREBRAL EMBOLISM, HÆMORRHAGE, AND THROMBOSIS. *See* APOPLEXY.

CHAPPED HANDS.

The hands should not be exposed to the air out of doors, but gloves, slightly ventilated, should be worn. In washing, a superfatted soap should be used; after washing all soap away with warm water, a mixture containing equal parts of glycerin, lemon-juice, and eau de Cologne should be lightly rubbed in and then quickly rinsed off. The hands should be carefully dried afterwards with a warm towel. At night liq. carbon. deterg. $1\frac{1}{2}$ dr., hydrarg. ammoniat. 25 gr., lanolin. 2 oz. should be applied, and sleeping-gloves, made of chamois-leather and well ventilated, should be used.

CHEIROPOMPHOLYX (Dysidrosis).

General treatment.—Arsenic in small doses (5 m. of the liquor arsenicalis) should be prescribed, and later on fe. et ammon. citr. 10 gr. may be added. A liberal diet should be taken. Alcohol, tea, and tobacco are said to be injurious.

Local treatment.—The affected part should be frequently bathed in perchloride of mercury (1 in 4000),

and salicylic acid 8 per cent., starch 10 per cent., with powdered talc, subsequently dusted on. Ung. acid. salicyl. may be used instead of the powder. When the attack has subsided the systematic use of resorcin, or formalin soap, helps to prevent its recurrence. If the attack is more acute and has spread to the arms, we must commence with a soothing lotion, such as calamin. 4 dr., glycerin. 2 dr., aq. rosæ ad 8 oz.

CHICKEN-POX.

A suspect should be isolated for three weeks. A patient is free from infection when all the scabs have separated and all the sores have healed.

In most cases the only treatment required is a light diet, and confinement to bed until the vesicles have become scabs and the temperature is normal. Irritation of the skin may be relieved by sponging with tepid boracic-acid solutions (10 gr. to 1 oz.). Elimination is assisted by a dose of magnesium sulphate every morning.

The child should be prevented from scratching the pocks. In severe forms, especially in varicella bullosa, the diet should be generous, and stimulants may be required. The pocks should be treated with warm boracic fomentations, and zinc ointment should be applied to the ruptured bullæ.

CHILBLAINS.

The circulation should be improved by general and local means.

General treatment.—Calcium lactate in 15 gr. doses thrice daily is of service. Cod-liver oil, iron, and quinine may be given. Cold, and cold water, should be avoided. Warm clothing is essential. Vigorous exercise is necessary. The bowels should be regulated.

Local treatment.—Tight boots and tight gloves are to be avoided. In persons with a tendency to chilblains the part usually affected should be daily sponged with rectified spirit. In its earliest stages, the chilblain may be well rubbed with the following for some days : Spirit. camphor.

2 oz., tr. capsici 1 dr., tr. cannab. indic. 1 dr., ol. cajuputi 1 dr., or equal parts of the liniment and tincture of iodine may be applied.

If cracks or blebs form, they should be dressed with zinc ointment. The affected parts should not be allowed to hang in a dependent position.

CHLOROSIS. *See under ANÆMIA.*

CHOLERA ASIATICA.

The only treatment of proved value is the symptomatic and expectant one. At the outset we may have recourse to a dose of castor-oil 4 dr., and chlorodyne $\frac{1}{2}$ to 1 dr., and the free use of brandy. If this fail, the patient must be confined to the horizontal position in a warm well-ventilated room. The body should be kept warm, and should be rubbed dry every now and again with warm towels. The stools should be passed into a warm bed-pan. Food should be withheld whilst the disease is active. The thirst may be relieved by small sips of water, champagne, or brandy and water. Large quantities of fluid cause vomiting. Cramps may be relieved to some extent by gentle friction or by $\frac{1}{6}$ gr. of morphia hypodermically.

If the pulse show signs of failing, injections of ether or brandy, and of digitalin $\frac{1}{8}$ gr., strychnine $\frac{1}{30}$ gr., may be given. If there is excessive loss of fluid, normal saline fluid (1 dr. to 1 pint), with the addition of sodium bicarbonate (40 gr. to 1 pint) to make it alkaline, should be injected into a vein, or subcutaneously, and the absorption hastened if necessary by gentle massage. The solution should be used at 100° F. The best method is to have a syphon reservoir three feet above the patient's arm, and to allow the fluid to gravitate slowly into the vein as long as there is any necessity for it. As a rule, from two to three pints may be injected slowly at a time.

During the stage of reaction bismuth. salicylat. 20 gr., sodii bicarbon. 15 gr., liq. morphia hyd. 10 m., inf. calumbæ ad 1 oz. may be given every four hours. If necessary,

starch and opium enemata may also be prescribed. If urine is not being secreted, the loins should be cupped; stimulating diuretics are dangerous. The catheter may have to be employed.

During convalescence no purgatives should be given, but soap and water enemata may be employed if necessary. The food for a time should be milk and barley-water, and the return to ordinary diet must be made with great caution.

To prevent the spread of the disease, rigid precautions must be taken with the urine, fæces, the patient's body, and all contaminated clothes. In every case the patient should be isolated.

Prophylactic.—In an epidemic any symptom of diarrhœa should at once receive active treatment. All water should be boiled and filtered, including water used for washing vegetables. No fruit should be eaten, and all food should be recently cooked. Purgatives should be used with discretion. Intestinal disinfectants, such as salol 10 gr. thrice daily, may be of value.

CHOREA.

ACUTE CHOREA.—In this disease, whether it is in the first instance dependent on rheumatism or not, the nervous system is in a condition of instability. Many patients in an early stage of the disease get well without much being done for them beyond taking them from school, protecting them from punishments or ridicule, and paying attention to their nutrition. Other patients gradually become worse in spite of treatment. It is wise therefore to treat every case as a severe one from the start. The patient should be kept at *rest*, and *isolated* as far as possible, on exactly the same lines as is customary in neurasthenia. The *diet* should be nutritious and simple, and all stimulants, including tea and coffee, forbidden. In rheumatic cases a milk diet should be prescribed. Daily cold sponging is of value. No exercise should be allowed at the beginning of an attack, but later on massage should be employed.

Medicinal treatment.—The drugs employed are very numerous, and most of them useless.

(a) In cases where the *rheumatic origin* is obvious, salicylates should be given freely. A child of ten should be given 10 gr. doses of the natural sodium salicylate every hour for three or four doses, and should then have 40 gr. daily. Calomel should be given to regulate the bowels. As the choreic movements diminish the salicylates may be gradually stopped and replaced by arsenic. In these cases return to exercise should be very gradual.

(b) In *non-rheumatic cases* arsenic should be given in full doses. A child of eight may be given 4 m. of liq. arsenicalis thrice daily, and then the dose increased by 1 m. a day until there is some griping, diarrhoea, or irritation of the conjunctiva or nasal mucous membrane. The use of the drug should then be discontinued for four days, when the smaller doses may be resumed and gradually increased to 10 m. or 12 m. When the movements cease the drug should be stopped. The arsenic should be given after meals, and largely diluted. When arsenic fails, the best alternative is antipyrine, a child of eight having 15 to 20 gr. a day.

In severe cases it may be necessary to restrain the movements by bandages, but if this measure causes active discomfort it must be stopped. Chloral is the best drug for controlling the spasms. A child of eight may have 8 gr. doses at first, and these may be increased to 15 gr. thrice daily. A sufficiency of food is essential; and if necessary the stomach-tube must be used under chloroform.

As chorea tends to recur, patients should be protected from any nerve-strain or bodily ailment after the first attack.

CHRONIC CHOREA.—When the acute stage of chorea has passed, or when we are dealing with chronic cases, there is sometimes a difficulty in dealing with what have been called residual movements: Very good results are obtained by massage, and the use of carefully graduated exercises to train the affected muscles—*e.g.* threading needles, aiming

with a pointer at different circles on a blackboard, drilling, &c. (*See FRÄNKEL'S EXERCISES.*)

CHOREA GRAVIDARUM.—In this form the best treatment is to remove as far as possible any form of mental anxiety, to place the patient under the conditions of Weir-Mitchell treatment (*see NEURASTHENIA*), and to promote sleep. The latter is best induced by chloralamide (20 gr. in cachet or wine).

CIRRHOSIS OF LIVER.

Alcohol in every form should be forbidden. In some cases it is necessary to cut off the alcohol gradually, but in all cases it should be done as quickly as possible. When alcohol is necessary for a time, what is given should be well diluted.

When ascites is not present, open-air exercise is invaluable. The diet should be plain and easily digested. Fish is better than meat. Spices and condiments should be avoided. Large quantities of diluted milk, barley-water, or aerated water are useful. It is essential that at first purgation should be free. At the commencement of treatment pil. hydrarg. 5 gr. may be given twice a week at night, and a teaspoonful of the following mixture in a pint of water taken thrice daily between meals : Sod. sulphat. 1 dr., acid. sulphuric. dil. 8 m., succ. taraxaci 1 dr., sp. chloroform. 10 m., inf. gent. ad 1 oz.

As the patient improves, the purgation should be less free, an occasional blue pill followed by a saline draught being sufficient. The following mixture may then be given : Ext. taraxaci liq. 1 dr., acid. nitro-hydrochlor. dil. 10 m., tr. chlorof. co. 15 m., inf. gent. co. ad 1 oz., thrice daily.

If ascites is present, rest in bed is required, with a purely milk diet, free purgation, and, if necessary, tapping. (*See ASCITES.*)

If vomiting is a troublesome feature, complete abstinence from food for twenty-four hours, together with stomach lavage, is usually efficacious.

The application of blisters to the epigastrium is often of service. Bismuth. carbon. 20 gr., morph. hydrochl. $\frac{1}{2}$ gr., acid. hydrocyan. dil. 8 m., aq. ad 1 oz., may be tried.

Diarrhoea is of service and should not, as a rule, be checked. Hæmatemesis seldom kills in this disease, but necessitates absolute rest, complete abstinence from food for twenty-four hours, together with an injection of morphia ($\frac{1}{8}$ to $\frac{1}{2}$ gr.). Calomel 5 gr. should be given at once, and an enema in six to eight hours. Milk may be given after twenty-four hours in small quantities.

COCAINE-HABIT. See MORPHIA-HABIT.

COLD IN THE HEAD.

It is possible in some cases to abort a simple nasal catarrh. To do so, remedies must be applied before there is much secretion—that is, in the ‘tickling’ and sneezing stage. A free purge should be given, and at night a hot bath together with pulv. ipec. co. 10–15 gr., or quin. salicyl. 6–10 gr. These measures should be combined with the frequent application of the nasal douche. The fluid used for the douche should be at 100° F. at least, and it should be alkaline. Whilst the douche is given the mouth must be kept widely open, and the patient must go on breathing so that the fluid may flow out of the other nostril. For this purpose the preparation known as glycothymoline may be used, or the following: Sodii bicarb. 4 gr., sodii bibor. 4 gr., sodii benz. $\frac{1}{2}$ gr., eucalyptol $\frac{1}{2}$ m., menthol $\frac{1}{2}$ gr., aq. ad 1 oz. These solutions should also be used as gargles.

If the catarrh has been present twenty-four hours, it is useless to try to abort it. The patient should stay indoors, the nasal and gargling treatment should be adopted, and pulv. ipec. co. 10 gr. should be given at night with a hot drink. If there is rawness of the chest and but little secretion from the bronchial tubes, and the patient is content to stay indoors, we may give vin. antimon. 10 m.,

vin. ipecac. 10 m., sp. æth. nitr. 80 m., liq. ammon. acet. 2 dr., mist. amygdal. ad 1 oz., every four hours for two days.

If the patient has to go out, a simple quinine mixture should be substituted. For those who stay indoors the mixture just mentioned may be followed by a quinine mixture as soon as secretion in the bronchial tubes is established.

COLIC.

1. **INTESTINAL COLIC.**—*In infants.*—In most cases this is caused by flatulence, which in turn depends on over-feeding or on too high a percentage of proteids in the milk. The object of treatment is to expel the gas, and when this has been done to regulate the food (*see* INFANT FEEDING). A rectal injection of 4 oz. of warm water (100° F.) should be given slowly; if this is not successful, 2 oz. of cold water with half a teaspoonful of glycerin may be tried. Dry heat should be applied to the abdomen and the feet kept warm. A teaspoonful of castor oil by the mouth should also be given, to prevent recurrence of the colic. After an attack has passed off, an infant of six months may be given resorcin 2 gr., sp. ammon. aromat. 1 m., tr. cardam. co. 2 m., aq. dest. 80 m., every three hours. Recurrence may usually be prevented by adequate clothing, especially warmth to the extremities, attention to the diet, and the avoidance of constipation.

In adults.—In the majority of cases this symptom depends upon the presence of irritating food. Before treatment is commenced, the presence of any obstruction of the bowel must be excluded. In ordinary colic, heat and pressure to the abdomen and a soap-and-water enema, together with ol. ricini 4 dr., tr. rhei co. 2 dr., tr. opii 20 m., aq. cinnam. ad 1 oz., relieve the distress. In cases where there is much vomiting, calomel 5 gr. and morphia $\frac{1}{4}$ gr. may be placed on the tongue, and a large soap-and-water enema given. Tincture of colocynth (German Pharma-

copœsia) in 2-8 m. doses is said to be effectual in mild cases when given by the mouth.

The patient should be kept on a light diet for a few days, and should avoid cold. A course of abdominal massage, combined with a restricted diet, does much to prevent recurrence of the attacks.

2. **LEAD COLIC.**— $\frac{1}{4}$ gr. of morphia may be given at once, and if necessary the patient should be placed in a hot bath, or heat may be applied to the abdomen.

Magnesii sulphat. 1 oz. should be administered, and 1 dr. may then be given every three hours until the bowels act. The patient should be kept on light diet, given a daily morning purge of magnesium sulphate, and later have a course of potassium iodide. (See PLUMBISM.)

8. **RENAL COLIC.**— $\frac{1}{4}$ gr. of morphia, together with a hot bath (commencing at 100° F. and gradually raised to 106° F.) should be given at once for ten minutes. The patient should be given a fluid diet, and the urine should be rendered alkaline by liq. potassæ 20 m., ext. glycyrrh. liq. 80 m., aq. ad 1 oz., every six hours.

An operation should be advised if there is clear evidence of the presence of a renal calculus.

COLITIS.

SIMPLE COLITIS.—The patient should be kept in bed until the temperature and the motions are normal. Milk (with 1·5 per cent. sodium citrate added) only should be given at first, and not more than 2 oz. at a time; usually 2 to 8 pints may be taken in twenty-four hours. Warmth should be applied to the abdomen. To check the diarrhoea the following may be tried: Tannalbin 15 gr. every six hours, or bismuth. carb. 20 gr., tr. opii 10 m., muc. acac. 80 m., tr. zingib. 15 m., aq. chloroformi ad 1 oz., every four hours; tr. kino 30 m. may be added to the mixture. A starch-and-opium enema often succeeds in checking the diarrhoea, if the above fails. Washing out the colon with various lotions has little if any effect in the majority of cases.

All astringent medicines should be stopped as soon as possible, as constipation following colitis is troublesome. If it occur, it is best relieved by a rectal injection of olive oil 8 oz., or glycerin 1 dr.

Careful feeding, tonic treatment, and change of air should follow the attack.

MUCOUS, MEMBRANOUS, OR ULCERATIVE COLITIS.—In all cases the condition of the rectum and of the sigmoid should be ascertained by means of the sigmoidoscope before treatment is commenced.

The patient should remain in bed and be kept warm. The diet should consist of milk (containing 1.5 per cent. sodium citrate), 2 to 8 pints, in 2 oz. feeds. Custards, jelly, blancmange, and other farinaceous foods may be cautiously added subsequently. Tea, green vegetables, and beef-broths must be avoided. If the pain is severe, abdominal fomentations are comforting. Opium should be withheld unless absolutely necessary. A grain every four hours may be given. It is of the first importance that the bowels should act daily and that the motions should be soft, whilst on the other hand diarrhoea must be avoided. As a rule, small doses of castor oil, 1 dr. to 2 dr., or pulv. glyc. co. 1 dr., act best.

Rectal injections are often of service, but they must be given slowly and efficiently. They should be of a temperature of 100° F., and should be introduced slowly into the bowel by a long rectal tube passed as far as possible. At the commencement the patient should lie on his back with the hips well raised. After some fluid has passed in, the patient may turn on the right side. Half to three-quarters of a pint of saturated boracic-acid solution may be used twice a day. In intractable cases this solution may be followed by the use of 2 pints of distilled water containing 10 gr. of nitrate of silver, which again must be followed by a solution of normal saline to prevent the absorption of the silver nitrate.

If the *diarrhœa* is excessive it may be checked by opium, or tannalbin 15 gr.

If *hæmorrhage* is severe, a starch-and-opium enema may be given, or 1 oz. of liq. ferri perchloridi in 8 oz. of water may be injected into the rectum as high up as possible. If this fails, 20 c.c. fresh horse serum should be given once a day by the mouth.

Surgical measures.—In many cases the above treatment is useless. If the case does not speedily react to treatment, or if the condition is precarious, the advisability of *opening the cæcum* to give the bowel rest should be considered. If this is decided upon, the colon should then be daily flushed through with saturated boracic solution. In time the cæcum may be closed again; but one objection to this surgical procedure is that the cæcum not infrequently heals very slowly.

Appendicostomy and subsequent flushing is seldom of service.

COMA.

The treatment of this condition varies with the cause, and is discussed under the appropriate headings: Cerebral Hæmorrhage, Opium-poisoning, Alcoholism, Diabetes, Uræmia, &c.

CONDYLOMATA.

Cleanliness and the free pencilling of the patches with solid silver nitrate, or brushing with the acid nitrate of mercury solution, and subsequent dusting with a powder of equal parts of calomel and calamine, is all that is usually required.

CONGESTION (Pulmonary). If due to cardiac lesions, see HEART-FAILURE, pp. 149-151.

CONSTIPATION.

HABITUAL CONSTIPATION.—In adults in this condition we must remember that treatment is (1) palliative, and (2) curative. The palliative measures are drugs, suppositories, and injections. Curative measures deal with

any organic lesion which may be present, and, if no organic lesion is present, consist of diet, massage, and exercise, and the formation of regular habits. On seeing a case of habitual constipation for the first time, it is necessary to make a thorough inquiry as to the habits and history of the patient, to see whether the condition depends on (1) improper feeding; (2) over-drugging; (3) loss of tonicity of the intestinal muscles from want of exercise or other cause; (4) loss of response to stimulation by the rectum owing to the act of defæcation being postponed and not performed at regular hours; (5) the presence of organic conditions, such as an unduly tight sphincter, fistula, or fissure, a retroverted uterus, or stricture of the bowel. Any definite cause should receive special attention; and it is worth while remembering that an unduly tight sphincter is a more common cause of constipation than is supposed, and that it can readily be remedied by stretching under an anæsthetic.

Apart from organic causes, habitual constipation in an adult may be treated on the following lines:

General treatment.—(1) The posture during stool is of importance, and the most natural one is obtained by the seat being sufficiently low to raise the knees above the level of the pelvis.

(2) The patient should be made to understand the necessity of going to the closet at a *fixed* hour every day, and by patience and artificial means gradually to accustom the bowel to empty itself daily. At the same time the patient should be warned not to strain.

(3) The patient should take sufficient exercise: a brisk open-air walk or ride before breakfast is often of great assistance.

(4) Massage to the abdomen for five to ten minutes before retiring and just before rising is of value. The hand should be warm and no oil used, the purpose being to move the skin and abdominal muscles upon the intestines. This should be done with a circular motion, changing

the point from time to time until the whole abdomen has been thoroughly covered. In addition, there may be a general kneading of the abdomen. The patient may strengthen the intestinal and abdominal muscles by abdominal breathing-exercises. To effect this he should lie on his back for five minutes night and morning, and breathing deeply with his abdominal muscles keep his thorax as rigid as possible. The abdominal muscles may also be strengthened by the patient raising his head and legs whilst lying on his back.

(5) The patient usually eats too little, or there is insufficient residue in the food to cause intestinal contraction. Patients should therefore be told to eat rather more than is necessary for the maintenance of health. Porridge should be taken at the commencement of breakfast; brown bread or wholemeal bread leave considerable residue. Oily salads, vegetables, and fruit are of service—*e.g.* an orange at breakfast and a Spanish onion in the evening. Hard-boiled eggs should be forbidden, or indeed any article which the patient has found by his individual experience causes constipation. It is essential that at least three pints of fluid be taken in the twenty-four hours, and that the water used should not be 'hard.'

Medicinal treatment.—It is necessary *at the commencement of treatment* to get the bowels to act well, and then by drugs or enemata, &c., to induce the bowel to form a habit of acting at a certain time of the day. The rectum, if loaded, should first be cleared out. It may be necessary in long-standing cases to do this mechanically with a spoon. In most cases an enema of ol. ricin. 2 oz., ol. oliv. 2 oz. at night, followed in the morning by a soap-and-water injection—a pint to two pints—does all that is required. When the rectum and colon have been cleared out the bowels may be kept open by any of the methods enumerated below.

It must be remembered, however, that drugs are the least important things in the management of constipation. In a number of cases the faeces reach the rectum in the

normal time; consequently medicines are of little value. In such cases the use of enemata gives the best results, but the condition of the sphincter is of importance. If this is tight, it must be stretched. In many instances medicines are required. The most valuable are those which stimulate the muscular walls, such as cascara, nux vomica, and belladonna. In the case of most drugs the prolonged use of small doses produces better results than the occasional use of large ones. Some drugs, such as castor oil, though effectual for the moment, increase eventually the tendency to constipation. In all cases, when any drug has induced an habitual daily evacuation, its use should be gradually, not abruptly, discontinued. In such cases the individual patient must be studied, for the object in view is not to induce purgation, but to give such a dose of the remedy as will secure one soft natural motion every morning.

Prescriptions.—*R.* Syr. cascarae aromat. $\frac{1}{2}$ dr. several times a day. *R.* Ext. cascar. 2 gr., ext. nuc. vomic. $\frac{1}{2}$ gr., ext. bellad. $\frac{1}{2}$ gr., as a pill at 8 P.M. *R.* Fe. sulph., aloini $\frac{1}{2}$ gr., ext. nuc. vomic. $\frac{1}{2}$ gr., pulv. myrrh. $\frac{1}{2}$ gr., pulv. saponis $\frac{1}{2}$ gr., as a pill at 8 P.M. *R.* Aloin $\frac{1}{2}$ –1 $\frac{1}{2}$ gr., ferri sulph. $\frac{1}{2}$ gr., ext. nuc. vomic. $\frac{1}{2}$ gr., pulv. myrrh. $\frac{1}{2}$ gr., pulv. saponis $\frac{1}{2}$ gr., as a pill at 8 P.M. each night.

The use of these and other pills may be assisted when necessary by Hunyadi, Apenta, or Friedrichshall water before breakfast.

In many cases a simple water enema or the use of a soap suppository is quite sufficient, and may soon be discontinued. Glycerine suppositories act with great promptness, but should not be used habitually.

OCCASIONAL CONSTIPATION.—Here it is necessary to produce one evacuation, and there is not the same reason to avoid drugs which produce vigorous action. Pil. hydrarg. 8 to 5 gr. may be given at night, and followed in the morning, if necessary, by a simple saline such as a Seidlitz powder, or by tr. cardam. co. $\frac{1}{2}$ dr., mist. sennae co.

ad $\frac{1}{2}$ oz. In many cases *magnesii sulphatis efferves.* $\frac{1}{4}$ dr. in half a tumblerful of tepid water on rising is all that is required.

CONSTIPATION IN CHILDREN.—(a) *In children of about four years of age.*—An action at regular hours; massage of the abdomen for eight minutes morning and night; the juice of half an orange and a glass of Vichy water upon rising; a breakfast of porridge and cream, dry bread and butter, half a pint of milk containing 15 gr. of sodium citrate with cream and water added; a dinner of soup, beefsteak, potato, one green vegetable, baked apple or prunes, dry bread and butter and water; a supper of lightly boiled egg, dry bread and butter, half a pint of milk containing 15 gr. of sodium citrate with cream and water; a suppository containing aloin $\frac{1}{4}$ gr., ext. belladonnæ $\frac{1}{4}$ gr., ext. nuc. vomic. $\frac{1}{2}$ gr., ol. theob. 10 gr. In obstinate cases this suppository may be given night and morning, and later at night only. After some improvement the aloin may be omitted.

(b) *In younger children and infants.*—An infant often suffers from constipation because its mother puts it to the breast too frequently. Constipation can usually be prevented in hand-fed children by feeding on milk in which the proportion of fats and proteids suit the child (see INFANT FEEDING). In infants during the early weeks 2 to 8 per cent. fat, 1 per cent. proteids, with 2 to 4 per cent. lactose answer best; in those a little older 2 to 4 per cent. fat, proteids 1 to 3 per cent., with 2 to 4 per cent. lactose; during last half of first year 4 per cent. fat and proteids 2 to 3 per cent., with 2 to 4 per cent. lactose. In all cases 15 gr. of sodium citrate should be added to half a pint of milk. Gentle massage of the abdomen is of service. During the second year cream and water should be added to the milk (e.g. 1 oz. cream, $\frac{1}{2}$ pint milk, $\frac{1}{2}$ pint water). Malted foods may be substituted. Beef-juice and fruits are of assistance. Olive oil may be added to the food.

The clothing is of importance, as intestinal catarrh may set up constipation; hence short coating may act injuriously. If the bowel is much loaded, or the above measures fail, a glycerine or soap suppository or a soap-and-water enema should be prescribed. Aperients should if possible be avoided; if they are found to be necessary, the best is magnesium sulphat. 5 gr. two or three times a day in syrup of ginger and dill water, or liquorice powder $\frac{1}{2}$ to 1 dr., or ext. cascara liq. 5 to 20 m., may be given.

CONSUMPTION. See TUBERCULOSIS, PULMONARY.
CONVULSIONS.

The treatment must depend on the cause, whether it be uræmia, epilepsy, tetanus, apoplexy, alcoholism, strychnine-poisoning, puerperal convulsions, or other condition.

Immediate treatment.—If no cause is apparent, the patient, whether an infant or an adult, should be placed on his back, the head and shoulders being slightly raised, and all constriction by clothing removed. Cold should be applied to the head, preferably by means of an ice-cap or cold cloths, and dry heat and counter-irritation to the body and extremities. The best form of counter-irritation is by mustard-leaves or poultices. If stridor is marked, the patient should be placed on his side. Attention should be paid to the tongue to prevent damage, and if necessary the movements of the limbs should be restrained. The use of chloroform is the most reliable method for controlling the convulsions. Whilst it is administered, chloral should be injected high into the bowel by means of a catheter, and the buttocks held together to prevent it escaping. For an adult the dose is 80 gr.; a child of six months may receive a dose of 4 gr., and a child of three years a dose of 8 gr. These doses may be repeated in an hour if necessary. If these measures fail, morphia may be given. When the heart's action is weak it is the best remedy we have. An adult may receive $\frac{1}{2}$ gr., a child of two years $\frac{1}{8}$ gr., and an infant of six months $\frac{1}{8}$ gr. These doses may be repeated

in half an hour if no effect is produced. Oxygen in many cases is of value. In some instances amyl-nitrite vapour is useful.

After the convulsions have ceased, the patient should be kept in bed for a few days on a light diet, the bowels well opened by calomel or castor oil, and a mixture given such as: Ammon. bromid. 15 gr., chloral hydrat. 7 gr., syr. aurant. 80 m., aq. caryophylli ad 1 oz., thrice daily.

In all cases an endeavour should now be made to ascertain the cause of the convulsions, and *measures adopted to prevent a recurrence* of the attacks.

In infancy and childhood convulsions are usually due to some error in feeding, to the presence of rickets, to the onset of an exanthem, or to some reflex cause such as thread-worms, phimosis, &c. Any such cause must be removed. It is rare for convulsions to be due to teething, but if this is thought to be the cause the finger should be disinfected and introduced into the child's mouth. If any tooth is felt near the surface the gum may be gently scraped through with the nail.

COUGH.

The treatment of any cough depends on its cause. If we are called to treat a troublesome cough for which there is no obvious cause, we must first eliminate by careful investigation the presence of consumption, dry catarrh of the bronchial tubes, laryngeal disease, pharyngeal disease, nasal disease causing an irritating discharge over the pharynx &c., reflex cough due to ear-disease, teething, liver-abscess, biliary calculi, gout, stomachic disease, or hysteria.

When the origin of the cough cannot be discovered, or when the cough is reflex, and doing nothing but harm, we may give sedatives such as heroin $\frac{1}{2}$ gr. in pastilles, glycoheroin 1 dr.; or the following linctus: Liq. morph. tartrat. 8 m., acid. hydrocyan. dil. 1 m., oxymel scillæ ad 1 dr. Large doses of ammonium bromide ($\frac{1}{2}$ dr.) are sometimes

invaluable. For the treatment of reflex cough accompanying catarrhal sore-throat an effective spray or gargle is the following: *Acidi carbolici* 1 dr., cocaine hydrochlor. 6 gr., *glycerini acidi borici* 1 oz., *aq. rosæ* ad 12 oz.

CRAFT PALSIES.

These should be treated on the lines laid down under *Writer's Cramp*, complete rest of the affected muscles being the first essential.

CRAMP.

For ordinary cramp, rest, a hot bath or hot applications, with subsequent massage, are the best measures. If the attacks are at all frequent, *pot. iod.* 5 gr. should be prescribed thrice daily, and tobacco-smoking allowed only in strict moderation.

(For the treatment of cramp arising in tetany or paralysis agitans, see the appropriate headings.)

CRETINISM.

Thyroid extract is a specific for this disease. Half a grain of Parke Davis & Co.'s desiccated extract of the sheep's thyroid gland may be given once or twice a day at first. If any tendency to fainting occurs, the dose should be reduced and the child kept in bed. As the child becomes accustomed to the drug, the daily dose may be increased gradually to 4 gr. If the pulse becomes frequent, the weight reduced, or if there are pains in the limbs, fever, or diarrhoea, the dose is too large and should be reduced. The child should be protected from the cold, and given simple but nourishing food. After a time, when the child approaches the normal, 4 gr. may be given twice a week in divided doses, but such doses must be continued through life.

CROUP.

There are three conditions which are loosely called by this term.

(1) **Membranous Laryngitis.**—This condition is due to diphtheria. (For its treatment, see *DIPHTHERIA*.)

(2) **Laryngismus Stridulus** (Spasm of the Glottis or Idiopathic Spasmodic Laryngitis).—This disease is not attended by catarrhal symptoms, and is usually associated with rickets. (For its treatment, see LARYNGISMUS STRIDULUS, p. 179.)

(8) **Laryngitis Stridulosa** (Spasmodic Catarrhal Laryngitis or False Croup).—In this condition the attacks of dyspnoea are associated with catarrh of the larynx, chiefly above the cords, and are accompanied by fever. It seldom occurs during the first six months of life, but is common between this age and the third and fourth years. (For its treatment, see LARYNGITIS STRIDULOSA, p. 181.)

DANDRUFF. See SEBORRHOEA CAPITIS.

DELIRIUM TREMENS. See ALCOHOLISM.

DENGUE FEVER.

Low diet and rest in bed are essential. Too early movement may induce joint-affections. A preliminary purge of calomel 5 gr. should be given. Anti-rheumatic remedies are generally useless. Hot applications in the early stages, and counter-irritation by lin. iodi in the later stages, help to relieve the joint-pains. If these fail, hypodermic injections of morphia $\frac{1}{8}$ – $\frac{1}{4}$ gr. may be used, or tr. opii 10 m., tr. belladonnæ 10 m., aq. chloroform. ad 1 oz. may be given every three hours for four doses.

DIABETES.

DIABETES INSIPIDUS.—Treatment of this condition is not satisfactory. Warm clothing should be insisted upon, and the general health receive attention. Any cause of strain or worry should if possible be removed. A non-stimulating diet should be given, and any food, such as milk or asparagus, which stimulates diuresis, withheld. It is not advisable to withhold water, as such a procedure induces much discomfort and depression.

Of drugs, opium usually fails. Valerian may be tried; thus ext. valerian. may be given in 5 gr. doses thrice daily, and increased till 2 dr. are taken in twenty-four hours, or zinc.

valerian. may be given in a cachet or as a coated pill in 15 gr. doses, and gradually increased to 30 gr. doses, thrice daily. If there is a history of syphilis, a course of potassium iodide may be tried. Electricity may be employed, but is seldom of use; a strong current should be used, the positive pole being placed on the nape of the neck and the negative over the loins. In some cases a course of high-frequency currents is of value. In others, where all measures have failed, isolation, rest, and massage, with a liberal diet, may be of service.

DIABETES MELLITUS, AND GLYCOSURIA.

—The treatment of diabetes has of late years become more scientific. Each case has to be thoroughly investigated, with the object of seeing whether any carbohydrate can be tolerated, and, if so, how much and of what kind. The effect of proteid food has also to be ascertained, and the quantity of acetone bodies must be accurately known. By means of such investigations we can roughly divide diabetes into classes, but each case must be treated on its merits.

In every case, worry, undue exertion, or mental strain must be avoided; patients should as far as possible lead an equable and regular life; they should be warmly clad, avoid cold, and see that the skin and bowels act well. In the following paragraphs diet, drugs, and health resorts are discussed shortly. The diet and drugs necessarily vary with the condition; for example, in some severe cases a strict diet, with opium, may be best for a time, whilst in slight cases the best results are obtained by a freer diet and salicylic acid.

Diet.—The object of dietetic treatment is to reduce the glycosuria to its smallest possible limits. If acetone bodies are present, the diet should not be restricted unless the patient is under constant medical supervision, preferably in an institution. Sometimes strict diet produces worse evils, such as an increase in acetone &c., and then we may

have to give a more generous diet. In such cases we must always hope to return later to the more stringent methods. It is essential in every case to determine, in the first instance, the precise amount of carbohydrate which the patient can tolerate. This may be done by giving him the following diet.

Von Noorden's Standard Test Diet.—*Breakfast.*—Six oz. of coffee or tea, with one to two tablespoonfuls of thick cream; 8 oz. of hot or cold meat (weighed after cooking); butter; two eggs with bacon; $1\frac{1}{2}$ oz. of white bread.

Lunch.—Two eggs cooked as desired, but without flour; or any other *hors d'œuvre* free from flour. Meat (boiled or roasted), fish, venison, or fowl, according to taste, about 6 to $7\frac{1}{2}$ oz. altogether (weighed when cooked). Vegetables, such as spinach, cabbage, cauliflower, or asparagus; prepared with broth, butter, or other fat, eggs or thick sour cream, but without any flour. Half to three-quarters oz. creamy cheese (such as Camembert, Brie, &c.); plenty of butter. Two glasses of light white or red wine, if desired; one small cup of coffee, with one to two tablespoonfuls of thick cream; $1\frac{1}{2}$ oz. of white bread.

Dinner.—Clear meat soup, with egg or green vegetable in it; one to two meat dishes, as at lunch; vegetable dishes, as at lunch; salad of lettuce, cucumber, or tomatoes; wine; no bread; drinks during the day (exclusive of wine), one or two bottles of aerated water.

The total urine excreted during the twenty-four hours must be collected, that of the day and of the night separately, and examined quantitatively for sugar. Both the percentage contents and, more especially, the whole quantity of sugar excreted in the twenty-four hours, are noted. Further investigations as to the quantity of acetone, oxybutyric acid, ammonia, nitrogen, follow as a matter of course.

If on this fare, the only carbohydrate contents of which are the 8 oz. of bread, no sugar is excreted, the

quantity of bread is then gradually increased until sugar does appear in the urine. If, on the other hand, sugar is excreted with this test diet, the patient is at first kept on the same fare until the daily quantity of sugar excreted has become nearly constant; then the quantity of bread is gradually diminished. At each stage in the diminishing process we keep our patient on the same amount of bread long enough to allow the sugar excretion to get a constant value proper to this stage.

Having become acquainted in this way with the influence of the food on the glycosuria, acetonuria, and on the general state of health of the patient, we must study certain other influences.

(1) It is found that some patients can tolerate more carbohydrate when they are taking plenty of exercise; in other cases muscular work does more harm than good.

(2) Many diabetics are extremely sensitive to carbohydrates in the early morning, especially when taken on an empty stomach, the tolerating power being generally greater in the evening than in the morning. Sometimes carbohydrates are tolerated better when given in very small and frequent amounts. In other cases carbohydrates are tolerated better if the whole quantity is taken at one meal.

(3) The tolerating power for the various types of carbohydrate foods varies greatly. Some diabetics can stand milk-sugar, or sugar in fruit, much better than proportionate quantities of starch-flour; others can tolerate starch-flour better. Others tolerate the starch of oats or potatoes better than the starch of rye or wheat.

(4) The influence of certain medicines, alcoholic drinks, and mineral waters should also be studied.

By an examination on the above lines we can divide our cases into three groups:

1. *Slight forms of Glycosuria*.—Cases which tolerate bread in the diet without excreting sugar.

2. *More severe forms of Glycosuria.*—Cases which do not tolerate bread in the diet without excreting sugar.

In some cases the urine becomes free from sugar as soon as carbohydrates are absent from the diet; these are cases of *moderately severe glycosuria*.

In other cases the urine does not become free from sugar until the quantity of proteid substances is also considerably reduced; these are cases of *severe glycosuria*.

In other cases the total exclusion of carbohydrates, together with the reduction of proteid food, does not free the urine from sugar; these are cases of *extreme glycosuria*.

When, on investigation in this manner, the tolerating power of a given patient for carbohydrate food has been ascertained, the case can be treated on the following lines; but it is important to remember that each case must be treated on its individual merits; it rarely happens that a practitioner can give precisely the same directions in two cases of diabetes.

Diet in slight cases of Glycosuria.—The patient should have a diet from which all carbohydrate is omitted, for two or three weeks. During the period of restricted diet the patient must consume an abundance of fatty foods, otherwise he will become weak and thin. The diet must be so arranged that the loss of weight does not exceed 1 lb. a week.

After this period carbohydrate may be gradually added to the food, but care must be taken that the amount of the carbohydrate in the diet always remains below the level of the toleration limit. It is advisable that patients should abstain for a week or so from all carbohydrate food at intervals of a few months.

In cases of albuminuria due to true nephritis, special care must be taken that the quantity of proteids and of extractives is not inordinately increased. It often happens that during the first few days of the employment of the restricted

diet marked reaction for acetone and for diacetic acid are obtained. The quantities of the acetone bodies are usually within physiological limits, and disappear completely in eight or ten days; but when the acetone bodies are increased far beyond these limits, and do not diminish within a few days, it is unwise to continue restricted diet unless the patient is under continuous observation in an institution.

In more severe cases of Glycosuria, in which 2 to 8 oz. of bread during the day lead to the excretion of sugar, the patient should, as before, be put on a restricted diet for two or three weeks, and then he should receive 8 to 8½ oz. of bread, or a corresponding quantity of other carbohydrates, and at the same time the intake of proteid should be so reduced that not more than 12 to 14 grm. of nitrogen are excreted in twenty-four hours. On this diet, of course, the patient continues to excrete some sugar; and, in order to counteract the harm caused, an eight or ten days' period of fully restricted diet should be prescribed every four, five, or six weeks.

Diet in severe cases of Glycosuria.—Whenever it is possible, these cases should have a fairly long period of restricted diet. Careful attention must be paid to the proteid constituents of the food. The intake of meat should usually be limited to 7 oz. in the day, weighed when cooked. The albumin of eggs and vegetables is better tolerated than the albumin of meat. After a week or so of restricted diet the patient should have, for two or three days, a diet in which the proteid is reduced to the utmost minimum, and which should consist largely of vegetables. It is essential in these cases that the acetone bodies should be accurately estimated every day: they usually increase much in the first week, and then begin to fall to the former value. If the increase is very considerable the period of restricted diet must be cut short, unless the patient is under continual observation in an institution. It is always wise

to give an abundance of alkali in these cases during the period of restricted diet.

After the period of restricted diet is over, 2 to 8½ oz. of bread or other carbohydrate should be allowed, and the proteid given should not lead to the excretion of more than 12 to 15 grm. of nitrogen. Every fortnight it is wise to prescribe two or three days' restricted diet, and then one day on which nothing but vegetables is allowed. Once or twice in each year the patient should submit to a longer period of restricted diet, which is carried out with all the precautions of the first period.

In some cases of very severe glycosuria what is known as the *Oat Cure* may be tried. This consists in the daily administration of 7 to 8½ oz. of oatmeal given in the form of gruel for two days, with 7 to 10 oz. of butter in addition. One hundred grammes of vegetable proteid, or a few eggs, may then be added to the above. Nothing else is allowed except black coffee or tea, good old wine, a little brandy or whisky. After four days of this diet vegetables only are given for two days.

In certain cases the same procedure has to be repeated two or three times. At the commencement of the *Oat Cure* there is an increase of glycosuria, but in many cases the sugar diminishes in a few days, and the acetone still more.

Medicinal remedies.—*Opium.*—When large quantities of carbohydrate are allowed there is no advantage in giving opium. When the patient is on a strict diet, and the last traces of sugar cannot be made to disappear, opium is invaluable. Diabetics stand the drug well, and although for the first few days they complain of lassitude and the appetite suffers, they soon become accustomed to these effects. When opium is given, care must be taken to avoid constipation, as this enhances the risk of coma. Codeine is the best form. The following may be given: Codein. ½ gr., ext. nucis vomic. ½ gr., ext. cascarr. ½ gr., as a pill thrice

daily, but if necessary the codeine may be very gradually increased to as much as 10 gr. in the twenty-four hours. Opium tends to lose its power over the glycosuria after a time. It should be given for a few weeks and then be omitted for a time.

Salicylic acid and its derivatives, such as *Aspirin*. In the same category may be mentioned antipyrine on account of its similar effects.

These drugs are often valuable in cases of slight glycosuria, and during the time carbohydrates are permitted. A diabetic who can only take 2 oz. of bread a day without salicylic acid can often take $8\frac{1}{2}$ oz. of bread without excreting sugar when taking about 45 gr. of the *natural* salicylic acid a day.

Salicylic acid and its derivatives tend to lose their power over the glycosuria after a time. They should be employed for a few weeks and then omitted for a time.

In testing urine for sugar it should be remembered that salicylates give a reaction with ferric chloride in the urine, whilst antipyrine turns the plane of polarised light to the left—that is, to the opposite side compared with grape-sugar.

Jambul.—In a few cases this drug is of value. It tends to lose its effects, and should be given occasionally for three to four weeks at a time. Pulv. jambul. 20 gr. in cachet may be given thrice daily. Another prescription is: Ext. jambul. liq. 1 dr., codeinæ phosph. $\frac{1}{2}$ gr., glycerole glycerophosph. co. 1 dr., inf. gent. co. ad 1 oz., thrice daily.

Treatment in Health Resorts.—Many diabetics receive great benefit from visits to certain health resorts. Carlsbad, with its alkaline sulphate water, is the goal of the majority, but Vichy and Neuenahr with their alkaline water, and Homburg with its saline water, are also of much service.

The diet in such health resorts is carefully regulated. Really strict diet cures are seldom practised there, as they

have been shown not to be of value, since the combination of the waters with a much restricted diet often leads to loss of power and to nervous irritability. The diet is often, however, much poorer in carbohydrates than at home. The physician's orders usually receive more attention than at home, while the customs of the hotels assist the patients to carry out the directions given.

Complications.—*Coma.*—If acetone bodies are present, or any other symptom suggesting the onset of coma occur, the diet should be reduced to skimmed milk and Vichy water. Bicarbonate of soda (2 oz. to 1 pint of warm water) should be given by the rectum twice or thrice daily. If coma occur, 5 oz. of normal salt solution (1 dr. to the pint) with 1 dr. of bicarbonate of soda should be injected into a vein, and larger quantities of normal saline solution injected subcutaneously or given by the rectum.

Headache is best relieved by sodii salicyl. 5 gr., phenazon. 5 gr., inf. aurant. ad $\frac{1}{2}$ oz., every fifteen minutes, for three or four doses.

Dyspnoea is best met by rest and oxygen. Other complications, such as heart-failure, boils, &c., are discussed under their own headings.

TABLE I. (*Van Noorden.*)

This table includes the foods which may be consumed by all diabetic patients. A few of them are not entirely free from carbohydrate ingredients, in the chemical sense of the word, but the quantities present are so slight that they may be practically disregarded. Such foods may therefore find a place in even the most restricted dietary. The majority of diabetic individuals may have as much of any of the following foods as they may desire; but if it becomes necessary for the intake of albumin to be diminished, then the practitioner must limit the foods containing large amounts of albumin—*e.g.* meat, cheese, eggs, &c. There also are diabetics who cannot be allowed to take spices freely.

Fresh meats.—The flesh of mammals and birds, braised, boiled, or roasted with their own gravy, with butter; fresh mayonnaise or other sauces made without flour, warm or cold.

Internal parts of animals.—Tongue, heart, lungs, brain, calf's spleen, kidney, marrow, game, and poultry up to 3 oz. (weighed after cooking).

External parts of animals.—Feet, ears, snout, and tail of all edible animals.

Conserved meats.—Dried and smoked meats, smoked and salted tongue, pickled meats, ham, bacon, smoked goose-breast, American and Australian tinned meats, brawn, ox-chops.

Sausage.—All kinds, if free from bread and flour.

Potted meats or meat-pastes.—Strasburg goose-liver, &c., provided they do not contain bread or flour; with home-made articles the absence of flour may be assured.

Albumin, preparations of.—Somatose, sanatogen, casein, eucasein, nutrose, tropon, &c.

Meat extracts.—Liebig's, Maggi's, &c.

Fresh fish.—All fresh and salt water fish, boiled or grilled, or served with flour-free sauce. Fresh melted or browned butter may be taken at the same time. If the fish is cooked in bread-crumbs, the latter should be removed before eating.

Conserved fish.—Dried, salted, or smoked fish, such as cod, shell-fish, herring, mackerel, sole, plaice, salmon, sprats, eels, &c.; also pickled herrings, sardines in oil, mackerel in oil, anchovies, sardellen, tunny; caviare.

Mussels and crustacea.—Oysters, lobsters, crab, turtle, &c.

Meat and fish sauces.—The well-known English piquant or similar sauces—Harvey's, Worcester, anchovy, lobster, shrimp, &c.—may be taken in small quantities, if not contra-indicated for special reasons.

Eggs.—From all birds, raw or cooked in various ways, but without added flour or meal.

Fat.—Of animal or vegetable origin—*e.g.* butter, lard, fat of roast meats, margarine, olive oil, usual salad oil, cocoa butter, goose fat; cod-liver oil.

Cream.—Good cream, rich in fat, sweet or sour, as a drink or added to solid foods, up to about 6 oz. a day. For cooking

purposes cream may be substituted for flour when making special dishes of meat, fish, vegetables, and eggs.

Baked foods.—Very few baked foods are absolutely carbohydrate free; those most nearly so are prepared partly from ground almonds, partly from gluten. Meal-free rolls of Callard and Co.; protene gluten bread. The meal-free rolls of O. Rademann, called gluten-rolls or air-rolls, have the advantage that they can be used when a month or so old; other varieties become uneatable after several days. Dessert cakes of Groetsch, prepared from almonds, cocoa, and saccharin. Almond bread.

Fresh vegetables.—Salads, lettuce, crisp and smooth endives, cress, dandelion, purslane.

Aromatic herbs.—Parsley, dill, thyme, pimpernel, mint, leek, garlic, celery.

Fruits and roots and stalks.—Gherkin, tomato, young green beans, vegetable-marrow, onions, rape-cole (so long as they are still green), radishes, sea-kale (in slight cases also root artichoke); white and green asparagus, hops, English celery (except the root), young rhubarb-sprouts.

Blossoms and flowers. — Cauliflower, broccoli, Brussels sprouts, artichoke.

Leaves.—Spinach, sorrel, curly cabbage, white cabbage, red cabbage, butter cabbage, savoy cabbage, red beet.

Fungi.—Fresh mushrooms, stone or egg fungi, morel, truffles in usual quantities.

Fruits.—Bilberries, unripe gooseberries, when prepared with saccharin instead of sugar.

Conserved vegetables.—Asparagus, haricot beans, cut beans, salted gherkins, peppered gherkins, mixed pickles, sauerkraut, olives, champignons, and any prepared vegetables of those groups already mentioned.

Condiments. — Salt, white and black pepper, cayenne, paprika, curry, cinnamon, clove, nutmeg, English mustard, saffron, aniseed, caraway, bay, caper, vinegar, citron—if not otherwise contra-indicated.

Soups.—Meat-soups prepared from fresh meats or meat-extracts, with the addition of green vegetables, asparagus, eggs, fragments of meat, marrow, Parmesan cheese, or other foods contained in this table.

Sweets.—Prepared from eggs, cream, almonds, citron, gelatine; saccharin being substituted for sugar.

Drinks.—All varieties of spring and seltzer water. Good brands of brandy, rum, arrack, whiskey, corn brandy, Kirschwasser, and other fruit spirits.

Wine.—All the well-known table wines (white and red) are almost sugar-free—at all events those that have been kept for three or more years in casks. Bordeaux and Burgundy wines come under this category, White Rhine, Moselle, Saar wines are also almost free from carbohydrates.

Tea and coffee.—With cream, but with saccharin substituted for sugar.

Cocoa.—Cocoa may be taken, if not specially contra-indicated. The quantity, however, should be restricted. One-third oz. of the pure cocoa of Van Houten or Stollwerk, or $\frac{2}{3}$ oz. of Bademann's cocoa for diabetics (sweetened with saccharin).

Lemonade.—Seltzer-water with lemon-juice, sweetened with saccharin or glycerin (lævulose may be used if specially permitted).

TABLE II.

This table includes those foods which contain a very small but still demonstrable quantity of carbohydrates. They must be prohibited during 'strict' dieting. As a rule, however, all diabetic individuals may take one or the other portion of them daily. Each portion of the following list does not contain more than 8 grm. carbohydrates. The amounts will necessarily differ for each patient. If these quantities are taken, the amount of bread permitted need not be diminished.

Vegetables.—Cooked without the addition of sugar and flour. Dried white beans, dried yellow or green peas (whole or mashed), one tablespoonful. White turnips, red turnips, carrots, celery (root), scorzonera, green or preserved peas and beans, large broad beans, prepared as vegetables or salad; two tablespoonfuls.

Potatoes.—A small potato about the size of a large plum, or a tablespoonful of mashed or fried potatoes.

Radish.—A small radish weighing about $1\frac{1}{2}$ oz.

Nuts.—Up to about $1\frac{1}{2}$ oz. About six walnuts, or ten hazel nuts, or eight almonds, or eight Para nuts.

Fresh fruits.—Apples, pears, apricots, about $1\frac{1}{2}$ oz.; raspberries, strawberries, black currants, a heaped-up tablespoonful; wild raspberries, blackberries, two tablespoonfuls; bilberries, three tablespoonfuls.

Cooked fruits.—Prepared with saccharin instead of sugar. Mirabelles, damsons, plums, apples, pears, apricots, peaches, sour cherries, a heaped-up tablespoonful; raspberries, gooseberries, blackberries, two heaped-up tablespoonfuls.

Dried fruits.—Plums, damsons, peaches, well soaked in water, a heaped-up tablespoonful.

Milk.—One and three-quarters to seventeen pints.

Cocoa.—Without the addition of sugar, $\frac{3}{4}$ oz.

DIARRHŒA.

The first thing to do is to *ascertain the cause*. It must be remembered that amongst the many causes of diarrhœa are malignant disease of the rectum, and an accumulation of fœces in the large intestine. Amongst other more obvious causes may be mentioned affections of the colon, enteric fever, dysentery, tuberculous disease of the intestines, and cholera, which are dealt with under their respective headings.

In all cases of diarrhœa now considered the following rules may be laid down :

(1) Complete rest; (2) no solid food for twenty-four hours, but fluid in small quantities at a time; (3) at first assist the diarrhœa by drugs which are mildly purgative, and afterwards astringent; (4) then check diarrhœa if it is doing harm, and is not the natural method of helping the disease; (5) return *gradually* to ordinary life and ordinary diet.

In all cases the diet is to be considered on the same principles; the medicines to be given vary somewhat with the cause.

DIARRHŒA IN ADULTS.

Diet.—For twenty-four hours no food should be given other than albumin-water, whey, or cold boiled water, which may be given in quantities of 2 oz. every three hours. After this interval a warm (not hot or cold) fluid diet in quantities of not more than 4 oz. should be given every three hours. Milk is usually the best food, and as a rule 15 gr. sodium citrate should be added to each half-pint. It may be given boiled, peptonised, or with 80 m. of the saccharated solution of lime (B.P.). When milk tends to increase the diarrhœa we may try farinaceous foods, especially genuine arrowroot made with water, or in some cases meat-broths or raw meat-juice. The return to ordinary diet should be gradual: at first, farinaceous food, milk puddings made without eggs, bread and milk, freshly infused weak tea (not hot); then a little mutton without fat. The last things to be added to the diet are fats and oils, strong broths, vegetables, fruits, ices, eggs, beers, and ales. Large draughts of fluid are to be avoided.

In many cases *stimulants* are invaluable. The best form is brandy diluted.

Medicinal treatment.—1. *In acute intestinal indigestion.*—Ol. ricini 4 dr., tr. zingiber. 80 m., ovi vitelli 2 dr., aq. cinnam. ad 1 oz. If there is much pain, tr. opii 10 m. may be added. If the stomach is irritable, calomel $\frac{1}{2}$ gr. every hour for six to eight hours is the best drug. When the preliminary purge has had its effect, tannalbin 10 gr. in cachet may be given every four hours. If this fails to check the diarrhœa we may give pulv. catechu co. 15 gr., syrup. zingib. 80 m., tr. opii 5 m., mist. cretæ ad 1 oz., every four hours; or a bismuth mixture with tr. opii 10 m. An enema containing tr. opii 15 m. and starch, or the compound lead suppository, may be given. In conditions of great irritability of the stomach and intestines it may be necessary to give subcutaneous injections of morphine ($\frac{1}{4}$ gr.).

2. In diarrhœa due to *gout*, astringents often fail; whilst small doses of calomel quickly answer, or pil. plumb. c. opio may be given every second night.

3. In diarrhœa due to *mechanical congestion* associated with cardiac failure, chronic nephritis, and liver disease, pulv. jalap. co. 1 dr. in the morning, or an occasional pil. hydrarg. 5 gr. are very useful.

4. In *nervous diarrhœa* liq. arsenicalis 2 m., before meals, often answers; in Graves' disease it may be necessary to give bromides in addition. In this form of diarrhœa the treatment must be chiefly directed to the cause, and a 'rest cure' should be prescribed. (See NEURASTHENIA.)

5. In diarrhœa due to *fecal accumulation*, the accumulation should be removed by an enema of castor oil 2 oz., olive oil 2 oz., followed in six hours by a soap-and-water injection, or, if this fail, by mechanical means.

Capsicum powder 2 gr. every four hours is useful in *alcoholic* diarrhœa; small doses of arsenic are useful in *malarial* diarrhœa.

(For other forms of diarrhœa, such as colitis and dysentery, see appropriate headings.)

DIARRHŒA IN INFANTS AND CHILDREN.

Acute Intestinal Indigestion.—We must first empty the bowels of all irritating food; calomel $\frac{1}{4}$ gr. every hour, until the full effect is seen, is the best drug. Castor oil 1 dr. may be given instead. After the offending materials have been swept away, opium may be given. For a child one year old $\frac{1}{4}$ gr. of Dover's powder may be given after each stool for three doses. Tannalbin 2 to 5 gr. thrice daily is useful.

Diet.—For the first twenty-four hours no food should be allowed but whey or albumin-water. Cold boiled water may be given in small quantities to allay the thirst—1 to 4 dr. every fifteen minutes or so. If prostration is marked, brandy may be given—in infants one year old 4 dr. in twenty-four hours. After the first twenty-four hours

young children should be fed on a diet of broths, farinaceous and malted foods; as improvement continues, milk (boiled and diluted, containing sodium citrate 15 gr. to the half-pint), may gradually be added. All cereals, fruits, and vegetables should be withheld.

SUMMER DIARRHŒA.—Fresh air is of the greatest importance. All patients who are convalescent, and those in whom the condition does not yield to two or three days' treatment, should be moved to the country. However much fever or prostration is present, all children do best if kept out of doors at rest for the greater part of the day; the clothing should be light flannel. A bath at 100° F., gradually lowered to 85° F., combined with gentle friction for five to fifteen minutes, does much to reduce restlessness and fever. Scrupulous cleanliness is essential.

Diet.—No food should be allowed for twenty-four hours, but thirst may be allayed by 2 dr. of whey, albumin-water, or cold boiled water every fifteen minutes. If there is depression, stimulants may be added. After twenty-four hours, nursing infants may be allowed the breast every four hours for a quarter of the usual time (say at first three minutes), and the effect watched. Between the nursing, we may give whey or albumin-water every two hours. In other children, including infants artificially fed, no milk should be allowed till the diarrhœa has ceased, and then it should be boiled and given in small quantities, with 15 gr. sodium citrate to the half-pint, and its effects carefully watched. We may give rice or barley water, farinaceous and malted foods, broth or bouillon made of veal, chicken, or beef, with a free supply of cold boiled water.

Stimulants are usually required from the beginning, brandy (for an infant, 4 dr., well diluted, in the twenty-four hours) being best. If the stomach is irritable, champagne may be substituted.

Medicinal and mechanical treatment.—When ever vomiting persists, the *stomach* should be washed out at

least once. If there is high fever and much thirst, an ounce or two of water containing 10 gr. of bicarbonate of soda may be left in the stomach. If it is impossible to wash the stomach, copious draughts of water may be given. These are usually vomited, and so to a certain extent cleanse the stomach.

Calomel $\frac{1}{2}$ gr. every hour for six hours, or until the characteristic green stools are seen, should be given. If there is no vomiting, *castor oil* in full doses, 2 dr. for one year, 4 dr. for four years, may be substituted. Later on these drugs should be repeated whenever there is any aggravation of symptoms.

The colon should be well washed out by a long rectal tube with saline solution (1 dr. of salt to a pint) at a temperature of 100° F. thrice on the first day, and daily afterwards.

If the diarrhoea continue, bismuth carbonate (2 to 4 gr. for a child one year old, every two hours) may be given, or bismuth subnitrate (1 to 2 dr. during the day to a child of two years). Astringents are seldom of value, but tannalbin in 2 gr. doses to a child of one year every two hours sometimes succeeds. *Opium* may be given (1) when large fluid stools persist and there is danger of collapse; (2) during convalescence when any food causes an action of the bowels. Small doses should be given, and stupor never caused. It is best given hypodermically—e.g. $\frac{1}{100}$ gr. morphia may be given to a child of six months, and repeated if necessary in an hour. When collapse is imminent, subcutaneous injections of normal saline solution, hot baths, mustard to the extremities, together with alcohol and digitalin by hypodermic injection, are indicated.

DILATATION OF STOMACH. See STOMACH,

DILATATION OF.

DIPHTHERIA.

Every case which on clinical grounds is suspected to be one of diphtheria should be treated at once—especially during an epidemic—as one of diphtheria, both from the

point of view of serum injections and of isolation, and valuable time should not be lost in waiting for a bacteriological report. In other words, the bacteriological report must be used for the purposes of confirmation only.

General treatment.—Every patient should at once be *isolated* and treated with antitoxin. If the bacteriological examination shows the disease not to be true diphtheria, the patient may be released from quarantine in two or three days, provided that the throat-symptoms subside, but if these persist a second culture should be made.

The *room* should be such that a plentiful supply of fresh air is possible. All unnecessary furniture, carpets, and hangings should be removed. Bed-linen, clothing, &c., removed from the patient should be placed at once in 1 in 20 carbolic, and then boiled for two hours. Pieces of membrane and other matters discharged from the patient should also be placed in 1 in 20 carbolic. Old muslin or absorbent wool should be used to cleanse the mouth and nose, and should be burnt at once. The floor and furniture should be washed daily with bichloride solution 1 in 2000. No food should be allowed to stand in the room.

The patient should be kept at *absolute rest in bed* from the commencement.

The *diet* should consist of milk diluted with barley-water, or if necessary peptonised. In some cases, where there is much pain on swallowing, the patient must be fed by a catheter passed through the nose.

Serum treatment.—A reliable serum must be employed. The serum keeps well for three to six months if kept unopened in a cool dark place. It must be given early in the disease, as it is more efficacious on the first day than on the second, and it is seldom of use after four days. In severe cases it may be useless after the first twenty-four hours.

Dose.—Children under two years may be given 6000 units hypodermically in the abdominal parietes. In urgent

cases quicker absorption is obtained by intragluteal injection. Children over two years should receive 8000 units; adults 10,000 to 15,000 units. These doses should be repeated in six hours if the progress of the disease is unfavourable. In some cases urticaria, erythema, or swelling of the joints follows the use of the serum, but these effects are transitory and unimportant, and may be obviated, as a rule, by giving calcium lactate 10 gr. thrice daily. If such rashes occur, calcium lactate $\frac{1}{2}$ to 1 dr. should be given and repeated in two hours if necessary.

Local treatment.—Cleanliness of the nose, mouth, and pharynx is of great importance. In most cases the nose should be syringed three or four times daily (in severe cases every two hours), chiefly for the purpose of flushing the rhino-pharynx, where absorption is very active. A vessel containing a 2 per cent. boracic-acid solution should be placed one to two feet above the bed, and its contents syphoned off by a tube as required. At the end of the rubber tube a glass tube should be attached for introduction into the nose. During the flushing the patient must keep the mouth open to avoid any danger of fluid passing to the middle ear. In young children an ordinary piston syringe should be used. In addition, those patients, who can, should frequently gargle with pot. chlor. 10 gr., acid nitrohydrochlor. dil. 5 m., aq. ad 1 oz. The nurse should swab the throat and mouth out from time to time with a solution containing 1 in 10,000 bichloride of mercury and one-eighth part glycerin.

Medicinal remedies.—No drugs need be given save for the control of special symptoms, and no external application should be made to the throat.

Complications.—*Cardiac failure.*—*Stimulants* are seldom needed till the third or fourth day, but they must be given whenever there is marked prostration, a feeble pulse, or a weak first sound of the heart. A child of four may have 4 dr. of brandy in twenty-four hours, diluted with eight parts of water. In severe cases three times as much

may be given for a short period. In adults 4 oz. to 8 oz. may be prescribed. Strychnine $\frac{1}{6}$ gr. and digitalin $\frac{1}{100}$ gr. may be injected every six hours where further stimulation is required.

Vomiting.—All nourishment by the mouth should be stopped, and nutrient enemata given every four hours. In addition, potassium bromide 20 gr. may be given by the rectum every twelve hours. An hour after each dose of bromide half a pint of water at 115° containing sodium bicarbonate 10 gr. should be introduced into the stomach by a tube. If this is rejected, more water should be poured in till it is retained.

Laryngeal Diphtheria.—If the larynx is affected, a bronchitis-kettle should be used. If the symptoms are urgent, or in less severe cases if the antitoxin treatment fails to relieve the patient and dyspnoea is increasing, tracheotomy should be performed.

Paralysis.—Absolute rest in bed is essential. Strychnine should be given hypodermically. If there is regurgitation of food, feeding should be carried on by a nasal tube. If the respiratory muscles are affected, the head of the bed should be lowered, oxygen given, and tr. belladonnæ 20 to 80 m. given by the rectum every four hours. In the later stages massage of the affected muscles is invaluable.

Convalescence.—Patients should be kept at absolute rest in all cases for at least a fortnight after the throat has cleared, but no patient should be allowed even to sit up if there is any tendency to cardiac weakness, or if there is an abnormally slow or rapid pulse. The great danger in severe (and sometimes in mild) cases is fatal syncope. Therefore the patient should at first only be allowed to have the head raised. If this does not produce irregularity or weakness or sustained increase in the rapidity of the pulse, the process may be gradually continued, and eventually the patient allowed out of bed. If the pulse is at all affected

the patient must remain in the recumbent position until it is thought wise to make a further trial. The *diet* may be gradually increased, but *stimulants* should be withdrawn as soon as possible. For marked anæmia iron and cod-liver oil are the best remedies.

Duration of quarantine.—A patient should be considered dangerous so long as bacilli remain in the throat. If no culture-tests can be made, quarantine should be continued in mild cases for ten days, and in severe cases for three weeks, after the membrane has disappeared. If bacilli remain in the throat, vaccine treatment with the patient's own micro-organism may be of value.

Prophylaxis.—Anyone exposed to diphtheria should receive a dose of antitoxin—100 units for an infant of one month, 700 units for a child of two to ten, 1000 units for an adult. These doses confer complete protection for three weeks, and may then be repeated if necessary.

DIPSOMANIA. See ALCOHOLISM.

DISINFECTION.

The room to be used during the attack of any infectious disorder should be cleared of all articles not easily cleaned. Thus carpets, hangings, pictures, books, &c., should be removed, and the furniture reduced to the minimum required. The usual practice of hanging a 'carbolic sheet' outside the room serves little purpose except to call attention to the constant necessity of avoiding infection. The *nurse* should be quarantined with the patient, and should not associate with other members of the family until a complete change of clothing has been made and the hands and face have been well washed in soap and water, and in some reliable antiseptic, such as mercuric perchloride (1 in 5000). The nurse should also use an antiseptic gargle and nasal spray frequently. All *dust* in the room should be removed with damp cloths, which should be burnt after use. The *furniture, floor, and wood-work* should be wiped over daily with mercuric perchloride

(1 in 1000). *Bedclothes and linen* after use should be allowed to soak in carbolic-acid solution (1 in 20) for six hours, and then boiled for two hours. *Sputum and discharges*, such as pieces of membrane, should be collected in a solution of carbolic acid (1 in 20), and then mixed with sawdust and burnt. Old pieces of muslin should be used instead of handkerchiefs, and should then be burnt. *Feeding-utensils*, knives, forks, &c., should be boiled in water, to which a little soda has been added, for half an hour to an hour. The *urine* should be collected in a utensil containing 4 oz. of a solution of carbolic acid (1 in 20). It should then be mixed with an equal quantity of a solution of chlorinated lime (1 in 10), and be allowed to stand for two hours before being emptied into the drain. The utensil should then be well washed with boiling water and afterwards with the carbolic-acid solution. The *stools* should be collected in a bed-pan containing 4 oz. of a solution of carbolic acid (1 in 20). Sixteen oz. of a solution of chlorinated lime (1 in 10) should be added to the motion, which should be intimately mixed with the solution (by two sticks, which should be burnt immediately after use). The mixture should be allowed to stand for four hours before being emptied into the drain. The bed-pan should then be well washed in boiling water, and afterwards with the carbolic-acid solution.

After recovery from any infectious disease the patient should have at least two warm baths, the entire body being scrubbed with soap and water and then washed in a solution of mercuric perchloride (1 in 5000), and every particle of clothing should be changed. The hair and scalp should be thoroughly washed with soap and water and then with a disinfectant.

Disinfection of the room and its contents after the attack is over.—As a rule the medical officer of health for the district will see that the necessary measures are carried out. The walls, floor, and woodwork should be wiped with

damp cloths wrung out in a solution (1 in 2000) of mercuric perchloride. Then, after a thorough cleaning, and whilst the walls and floor are damp, the room should be fumigated, preferably with formalin. A simple method is to use a Schering's lamp and tablets. Before fumigation the room should be closed, all cracks being stopped with cotton-wool, and the larger openings about the fireplace, windows, and doors should be sealed by pasting paper over them. The bedding, cushions, pillows, carpets, &c. should be hung over chairs, or upon lines of string about the room. Books should have their leaves well exposed.

After fumigation the room should remain closed for twelve hours. The carpets, hangings, bedding, clothes, &c. should then be placed in canvas bags, which should be damped outside, and removed to a disinfecting station. Any articles which are stained should be placed in a separate bag to have the stains removed before they are placed in the disinfectant. Books, leather articles, feathers, and furs should also be placed in a separate bag, as they are injured if disinfected by steam. It is a good plan to keep a list of all articles sent, to prevent loss. The wall-papers of the room should be stripped and new paper put on; the ceiling should be washed and whitewashed, and the woodwork washed and painted.

DROPSY. See BRIGHT'S DISEASE; HEART-DISEASE.

DRUG-HABIT. See MORPHIA-HABIT.

DYSENTERY.

Our aim is to afford the diseased organs favourable conditions for repair rather than to cure the disease by drugs. Vaccine and serum treatment of this disease have not so far given satisfactory results. In all cases we must ascertain whether *malaria* or *scurvy* complicates the case. If malaria is present quinine must be freely administered, either by the mouth, or, if the bowels are very irritable, by hypodermic injection (10 gr. each day). If scurvy is present, fruit-juices and fresh unboiled milk should be given in

addition to the ordinary treatment of dysentery. During the whole course of an attack of dysentery, and for months after, the condition of the liver should receive attention; and if any pain or swelling of this organ arises, treatment should be carried out on the same lines as in acute dysentery in the hope of avoiding a liver-abscess.

General treatment.—The patient should be kept absolutely at *rest* in bed in a well-ventilated room.

The stools should be inspected daily, for from them we can form the best idea as to the effects of the diet and drugs prescribed.

Diet.—No solid food should be given. If the tongue is coated, thin chicken soup, egg albumen, thin barley or rice water act better than milk. If the tongue is clean, or when it becomes clean, then milk, diluted if necessary with barley or rice water, or peptonised, acts best. Such fluids should be given in 2 oz. feeds every hour; they should be warm, but not hot or cold.

Pain.—This may usually be relieved by hot fomentations or a hot bath. It may be necessary to inject morphia. The tenesmus may be relieved for a time by irrigation of the rectum with hot saline solution, or by an enema of bismuth. carb. 2 dr., tr. opii 80 m., and thin starch 2 oz.

Medicinal treatment.—Drugs vary in their effects in this disease, and if a fair trial of one fails to do good, another must be tried as in the following scheme.

Ipecacuanha.—No food should be given for three hours. Tr. opii 20 m., aq. ad $\frac{1}{2}$ oz. should be prescribed, and a mustard-poultice applied to the epigastrium. In twenty minutes ipecacuanha may be given in doses of 20 to 30 gr. (or even 60 gr.) in cachet. To prevent vomiting, the patient must lie still, *flat* on his back. He must resist the desire to vomit, and must on no account swallow his saliva. No food should be given for four hours. If the drug is vomited up within an hour, the dose should be repeated as soon as the nausea has subsided. If there is no nausea at

the end of four hours, food in small quantities may be allowed. The same treatment should be prescribed next day. Two doses of ipecacuanha often abort the dysentery, but it may be necessary to continue the use of this drug, giving 5 gr. less in the dose each succeeding day ; and then giving a daily dose of 5 gr. for some time during convalescence.

Aperients.—If ipecacuanha fails, 1 dr. of sodium sulphate in a little hot water may be given every fifteen minutes until purgation is effected. An occasional dose may then be given to effect purgation one or twice daily for three days.

Calomel.—If the above fail, calomel 1 gr., ipecacuanha 1 gr., opium 1 gr. may be given every six hours, the effect being watched and salivation avoided.

As the symptoms improve, and the mucus and blood begin to disappear from the stools, slight diarrhoea continues. This is usually checked by bismuth. salicyl. 20 gr., morphia $\frac{1}{2}$ gr., or tannalbin 10 gr.

CHRONIC DYSENTERY.—*Clothing* must be warm. Cold baths are dangerous. *Alcohol* should be forbidden. The diet should be simple. Beef, mutton, cheese, bread, coarse fruit or vegetables, nuts, pickles, are not well borne. Some fruit, or fine, well-cooked vegetables should be given. In some chronic cases advantage is obtained by prescribing a more liberal diet.

The best treatment of the bowel is by *silver-nitrate injections*, but these must never be given if acute symptoms are present. The patient should be treated by rest and milk for a week. Castor oil 1 dr. should then be given by the mouth, and followed in eight hours by a large enema of three pints of warm water, containing 2 dr. of sodium bicarbonate. When this has entirely escaped, two to three pints of silver-nitrate solution ($\frac{1}{2}$ gr. to 1 gr. to 1 oz. of distilled water) should be slowly allowed to gravitate (by funnel and long tube) into the bowel. The patient at first should be in the knee-elbow position, and should then lie on

his belly, moving occasionally from side to side. He should retain the solution as long as possible. The excess of the solution should be washed out by simple saline solution to prevent absorption of the silver nitrate.

If the case improves, injections may be given every three days. If the silver-nitrate solution fails, boracic-acid injections may be tried. If nothing succeeds, it may be necessary to give the bowel rest, as in ulcerative colitis, by opening the cæcum for a time.

POST-DYSENTERIC CONSTIPATION is best met by glycerine enules or warm-water enemata, combined with castor oil twice a week. A course of Carlsbad water is often invaluable.

Prophylaxis.—The drinking-water should be pure. Chills, unwholesome food, alcohol, and constipation should be avoided. An attack of diarrhoea should be checked at once.

DYSIDROSIS. See CHEIROPOMPHOLYX.

DYSPEPSIA. See also FLATULENCE; GASTRIC ULCER;

DILATATION OF THE STOMACH.

The dyspepsia of various diseases in which the pathological cause is well marked, such as dilatation, ulcer, or cancer of the stomach, must be treated with definite reference to the pathological cause. When we have excluded these causes, we have a large group of cases in which the pathological cause is not so well marked and understood, or is in the main supplied by a more or less marked catarrh of the stomach. It is this group of cases which is now considered. In all cases, whatever the cause, *the condition of the teeth* should receive careful attention.

In the following paragraphs Dyspepsia is subdivided into—

A. Acute Dyspepsia : (1) mild cases ; (2) severe cases.

B. Occasional Dyspepsia due to (1) catarrh ; (2) excess of hydrochloric acid ; (3) gout ; (4) the menopause.

C. Chronic Dyspepsia due to (1) catarrh and atony ; (2) excess of hydrochloric acid.

A. ACUTE DYSPEPSIA.—(1) **Mild cases** require nothing beyond castor oil 4 dr. with tr. opii 10 m., abstinence from all diet save small quantities of water for twelve hours, then low diet for two or three days, and some mixture such as sodii bicarbon. 20 gr., liq. morph. hyd. 5 m., bismuth. carb. 20 gr., tr. lavand. co. 30 m., syrup. zingiberis 30 m., inf. gent. co. ad 1 oz., thrice daily, together with careful regulation of the bowels.

(2) In more **severe cases** the patient should be placed in bed and the stomach immediately washed out with warm water. If this is impossible, 30 gr. of powdered ipecacuanha may be given with large draughts of lukewarm water, to produce vomiting. Hot fomentations or mustard-poultices should be applied to the epigastrium. If the pain is severe, a hypodermic injection of morphia $\frac{1}{4}$ gr. may be given, but should be withheld unless the diagnosis is quite clear. If the vomiting persists, acid. hydrocyan. dil. 8 m., sodii bicarbon. 30 gr., aq. ad 1 oz., with half an ounce of lemon-juice, may be given and repeated in two hours. Calomel $\frac{1}{8}$ gr. should be given every hour until the bowels act. If there is much intestinal discomfort, a large soap-and-water enema should be injected at once.

Diet.—All food should be withheld for twenty-four hours, but water in small quantities at a time may be taken freely, and, if necessary, water may be given by the rectum.

The return to ordinary diet should be very gradual, and should at first consist of diluted milk containing 15 gr. sodium citrate to the half-pint, and broths in small feeds.

B. OCCASIONAL DYSPEPSIA.—(1) **Due to catarrh.** It is sufficient if we (i) insist on some rest before meals; (ii) persuade the patient to masticate his food properly; (iii) limit the quantity of fluids to 2 oz. at meals, but prescribe at least two pints of fluid, preferably hot water with a pinch of sodium bicarbonate, during the twenty-four hours. This fluid should be taken an hour or so before meals. A

glass of hot water at night with sodium bicarbonate 10 gr. is very useful in acidity; (iv) cut off for a week or so all broths or soups, green vegetables, potatoes, twice-cooked meat, fat, sugar, and milky puddings. This means a diet of *lean* meat, lightly boiled eggs, fish, toast, dry biscuits, custard, jelly, butter in small quantities, and special preparations such as panopeptone, somatose, protene, and the like. At the end of a week the patient may cautiously add to the diet; but if pain returns he should avoid the particular article for a longer time before making a further trial; (v) prescribe pil. hydrarg. 8 to 4 gr. at night, with magnesii sulphat. efferves. 2 dr. in the morning, twice a week for a fortnight; and liq. bismuth. et ammon. cit. 2 dr., vin. pepsini 30 m., liq. strychnin. 8 m., aq. chlorof. ad 1 oz., thrice daily, two hours after meals. (vi) As the condition improves the bowels should still be regulated, and the following may be prescribed: Sodii bicarb. 15 gr., acid. hydrocyan. dil. 8 m., inf. gent. co. 1 oz., twice daily, fifteen minutes before meals. (vii) The condition of the teeth should receive attention.

(2) **Due to excess of hydrochloric acid.**—(i) The bowels should be well cleared. (ii) The diet should consist largely of solid proteids and should contain only limited quantities of fat and carbohydrate material. Vichy water may be taken at meals. (iii) Salt should be forbidden and should not be used in cooking. (iv) A cachet containing bismuth. carbon. 25 gr., cerii oxalat. 10 gr. should be taken thrice daily after food, when there is discomfort. If the pain is acute, 1 dr. to 2 dr. of sodium bicarbonate may be given at once. (v) A mixture containing tr. nuc. vomic. 10 to 15 m. should be given thrice daily. (vi) Exercise should be prescribed. (vii) A hot or Turkish bath should be taken from time to time.

(8) **In gouty dyspepsia** we may give bismuth. oxydid. 8 gr., potass. bromid. 5 gr., aq. menth. pip. ad 1 oz., twice daily after meals, and the following purgative: Iridin

2 gr., aloes pulv. $1\frac{1}{2}$ gr., ext. hyoscyam. $\frac{1}{2}$ gr., as a pill at night, followed by a saline in the morning.

(4) In dyspepsia associated with the menopause, ichthyol in 5 gr. doses, in a capsule, is often most beneficial.

C. CHRONIC DYSPEPSIA.—This disease may be roughly divided into two classes: (a) cases depending on chronic catarrh, which in turn frequently depends on excessive farinaceous diet and improper mastication; (b) cases depending on excessive secretion of hydrochloric acid.

The diagnosis of the precise cause may often be made by means of Ewald's test breakfast and the usual chemical investigations. The test breakfast should be given on an empty stomach, and, if necessary, the stomach must first be washed out. The breakfast consists of 1 oz. of bread, 12 oz. of water, or 12 oz. of tea without milk or sugar. After one hour the contents are removed by the stomach-tube. In accordance with what is found we determine our line of treatment.

In all cases of any standing the results of treatment are not likely to be satisfactory unless the patient will submit to treatment in bed at home, or better still at a nursing-home, for the first two or three weeks of the course. Chronic cases are often largely due to the fact that the patient will not, or does not, implicitly follow the instructions given. Discipline and rest frequently make all the difference between success and failure.

In all cases of chronic dyspepsia attention must be paid to the following points:

(i) Any cause of reflex disturbance, such as errors of refraction or nasal obstruction, should be remedied.

(ii) The teeth should be put in order at the commencement of treatment, and the mouth should be cleansed two or three times daily with listerine or 4 volumes per cent. of hydrogen peroxide.

(iii) Mastication should be thorough. If a person chews his food thoroughly, carbohydrate material can be digested and the bowel-contents become less offensive than they do by the use of any intestinal antiseptic. Further, in cases of excessive secretion of hydrochloric acid, the process of mastication produces saliva, which tends to neutralise the excess of acid.

(iv) The bowels should be carefully regulated throughout the treatment. It is wise to commence the treatment with calomel 5 gr., followed by a saline in the morning.

(v) All patients who are not confined to bed should rest for an hour before the midday and evening meals. This procedure is often of the greatest possible benefit.

(vi) Exercise *short of fatigue*, together with movements of the abdominal muscles, such as abdominal breathing, raising the head or legs whilst in the supine position, should be insisted on. If the patient is kept in bed massage should be prescribed.

(vii) The function of the skin should be assisted. A hot bath at the commencement of treatment should be given, and then daily tepid sponging with brisk friction prescribed daily.

Apart from these measures, we may treat dyspepsia on the following lines :

(1) **Chronic catarrhal and atonic Dyspepsia** is usually dependent on delayed and imperfect digestion, with retention of irritating bodies in the stomach, and is generally due to excessive farinaceous intake, together with imperfect mastication.

Diet.—In severe cases all food by the mouth should be withheld for twenty-four to forty-eight hours. Nutrient enemata are not required. Thirst may, if necessary, be relieved by an occasional teaspoonful of hot water with a little sodium bicarbonate, and in all cases some three pints of saline solution should be injected into the rectum during the twenty-four hours. After this period of rest to the

stomach milk in small feeds may be given every hour. It is best to dilute the milk with one-third part of barley-water. The addition of 15 gr. of sodium citrate to each half-pint of milk prevents the formation of irritating curds. If pain results, albumin-water, whey, or peptonised milk may be given. According to the condition of the patient the diet may be gradually increased. After three days of the milk diet we may usually give lightly cooked eggs, Benger's food, jellies, and well-scraped raw meat. Gradually, protene biscuits or dry rusks, pounded fish, and lightly cooked meat may be added. The last additions to the diet should be vegetables, broths, sugar, potatoes, milky puddings or other carbohydrates, fats, and butter. If any addition to the diet is followed by pain or flatulence, it must be omitted for some days before a further trial of it is made.

Lavage.—In all cases it is wise to wash the stomach out in the early morning for the first few days. When the morning washing is free from mucus and from undigested food, the lavage may be gradually omitted, being prescribed every second morning, then every third, and so on. The washing each morning should continue till the water is quite clear. The best medium for washing is water at a slightly higher temperature than the body-heat, with 10 gr. of sodium bicarbonate to the ounce.

Medicinal treatment.—(i) At the commencement of the treatment a *sedative to the stomach* should be prescribed—*e.g.* bismuth. carb. 15 to 20 gr., pulv. tragacanth. co. 4 gr., acid. hydrocyan. dil. 8 m., liq. morph. 10 m., aq. chloroform. ad 1 oz., thrice daily. As the patient improves, the morphia should be omitted, and then the dose of bismuth diminished. When no pain has occurred for a week, sodii bicarbon. 15 gr., acid. hydrocyan. dil. 8 m., inf. gent. co. ad 1 oz., may be given twice daily, a quarter of an hour before food. These measures may be assisted, but only so long as digestion is impaired, by prescribing peuples containing

5 gr. of pepsin or pancreatin, alone or in combination with 2 gr. of bismuth carbonate and 1 gr. of powdered ipecacuanha.

(ii) At the commencement of the treatment a *movement of the bowels* should be obtained by means of calomel and a saline; subsequently $\frac{1}{2}$ gr. of calomel should be given twice daily, and the following taken in the early morning: Magnesii sulph. 30 gr., magnes. carb. 10 gr., tr. nuc. vomici 5 m., ess. menth. pip. 1 m., infus. cascarill. ad 1 oz. As the bowels become regulated, ext. cascar. 2 gr. or more, ext. nuc. vom. $\frac{1}{4}$ gr., ext. bellad. $\frac{1}{8}$ gr. may be taken in pill form at 8 P.M. If necessary, the saline mixture should also be taken in the morning. As the patient resumes his ordinary occupations he must gradually discontinue the use of these remedies.

(2) **Chronic Dyspepsia due to excess of hydrochloric acid.**—*Diet.*—The meals should be frequent and small, the number being gradually reduced. Condiments—especially salt, spices, fatty foods, alcohol, game, meat extracts, and fruits—should be avoided. Vegetables should only be given by themselves, but they may be cooked in soups which are strained before use. The diet should consist of milk, meat, especially mutton and beef, chicken, toasted bread, protein or similar dry biscuits. Plain water, Vichy water, or Carlsbad water are the best drinks. If gastrostasis is present, milk only should be given.

Medicinal remedies.—For the relief of pain bismuth. carbon. 25 gr., and cerii oxalat. 10 gr., in two cachets, may be taken thrice daily after food. Small doses ($\frac{1}{12}$ gr.) of morphia may be added if necessary. The bowels should be regulated by cascara 2 gr. or more, ext. nuc. vom. $\frac{1}{4}$ gr., ext. bellad. $\frac{1}{8}$ gr., in pill form, together with a morning saline if necessary. The use of bitters and acids does harm; large doses of sodium bicarbonate do no permanent good. Our chief aim should be to diminish the secretion of acid, which is frequently dependent on a neurosis. The

best treatment is to give tr. nuc. vomici 10 m. thrice daily, and to increase the dose up to the limits of tolerance.

Lavage should be employed if there is any stasis of the gastric contents.

In all cases of prolonged dyspepsia which do not yield to, or show considerable improvement under, medical treatment, the advisability of *surgical measures* should be considered, as the results obtained in many chronic cases which have resisted ordinary methods have become of late much more satisfactory.

ECZEMA.

In all cases great perseverance and attention to detail are required. In the great majority of instances the local treatment is of infinitely more importance than the constitutional treatment. We should as far as possible determine whether the disease is of parasitic or of neurotic origin, and if, as is often the case, these two factors are combined, which predominates. The cause of the irritation should be the subject of searching inquiry. It is necessary in each case to study the effect of any remedy upon the particular individual's skin. Patients' skins react differently. What will heal in one case does harm in another by setting up irritation, or must be applied in a stronger form in other instances before any effect is produced. Remedies should be prescribed in a diluted form at first, and then, when the peculiarities of the particular skin have been gauged, they may be rendered stronger or weaker as the case may require.

When the disease is quiescent, it is often wise to avoid direct local treatment; nothing does more harm than over-treatment.

General principles of treatment.—*Diet* is not of great importance. In acute cases it is probably wise to give a purely milk diet in the majority of instances. In chronic cases anything which in the patient's experience tends to cause flushing of the skin or which leads to in-

creased itching, should be avoided. Thus hot liquids, spices, pickles, salt meat, should usually be avoided. Alcohol should not as a rule be prescribed.

Clothing.—It is important that silk or fine linen should be worn next the skin. Flannel should be avoided.

Water.—(a) *Internally.* Large quantities of strong alkaline water do harm.

(b) *Externally.*—In acute stages the parts should not be washed with water, and friction should be avoided. As the inflammation subsides rain-water may be sparingly used. Hard water does harm. After the use of water, some lubricant should be applied to the skin. Soap does harm, and a handful of oatmeal serves its purpose. If soap must be employed, a superfatted one should be chosen.

Hydrotherapy has little direct effect on eczema. Sea-bathing as a rule does harm.

Climate.—As a rule, residence on the north and east coasts aggravates eczema. Sea-air is seldom of assistance. The best climate is a mild inland one.

A necessary *preliminary to local treatment* is the removal of all crusts and scales. These can be softened by means of oil applied on strips of lint, or by weak solutions of bicarbonate of soda. Crusts are readily loosened by keeping the parts covered for a few days with thin india-rubber. After the crusts have been removed we have to relieve the irritation, protect the inflamed surface from the air, and destroy any parasites which may be present.

The *general health* should be improved. Any cause of reflex disturbance, such as dyspepsia and constipation, should receive attention. Magnesii sulph. 30 gr., acid. sulphur. dil. 5 m., fe. sulph. 1 gr., aq. destill. 1 oz., every morning (for a few weeks) before breakfast, and again at eleven if necessary, is a good routine mixture. The iron should be omitted in acute cases. Sea air and bathing should be avoided.

ACUTE ECZEMA.—Medicinal treatment.—If the patient is fairly robust, vini antimon. 10 m. may be given at once, repeated in an hour, and again, if necessary, two hours later. The interval between the doses may then be increased, and 6 m. given thrice daily until the acute stage is over. If the patient is prostrated, antimony should not be given. It should be replaced by quinine sulphate 8 gr., thrice daily, combined if necessary with opium. Arsenic and iron should be avoided. If nervous symptoms are marked, morphia $\frac{1}{8}$ gr. may be given at night, and if necessary during the day. If the discharge is very great, ext. belladonnæ $\frac{1}{8}$ gr. may be given twice daily. Rest should be prescribed, and if the area involved is extensive the patient should stay in bed.

Local treatment.—A solution of boracic acid (10 gr. to 1 oz.) may be constantly dabbed on with lint during the day. The lint should not be covered with oil silk. At night the ung. zinci benz. may be lightly smeared over the affected part. As the eczema becomes less acute, the effect of sulphur may be tried (10 gr. of precipitated sulphur to an ounce of zinc ointment). The ointment should be applied on thin strips of fine linen, which should be evenly fixed by bandages. The amount of sulphur may be gradually increased if its use is well borne. Ichthyol is also useful, and ichthyol ammon. 1 dr., ung. acid. boric. 4 dr., ung. paraff. ad 1 oz. may be smeared on the affected surface.

CHRONIC ECZEMA.—Ointments should be used as a rule, but if there is much discharge an astringent lotion should be prescribed at first. The best drugs are tar, lead, and mercury. If there is much redness or irritation it is usually wise to withhold tar at first. Whitla's ointment acts well in many instances—viz. Liq. carbon. deterg. 1 dr., hydrarg. ammoniat. 10 gr., lanolini 1 oz. If there is much secretion, liquor. plumbi 1 dr. may be added. If there is much dryness and scaliness, the amount of tar, and, in many cases, of mercury, may be doubled.

A useful lotion is liquor carbonis deterg. 2 to 4 dr., glycerin. 4 dr., aq. ad 8 oz. Another is liquor. plumb. fort. subacet. $\frac{1}{2}$ dr., ol. amygdal. 1 oz., liq. calcis 1 oz., ol. caryophili 3 m.

When great *itching* is present and is not relieved by the above remedies, acid. carbolic. 1 dr., glycerin. 2 oz., aq. ad 8 oz. may be dabbed on. If *patches* are very *refractory*, chrysarobin 5 pts., acid. salicyl. 2 pts., ichthylol 5 pts., paraff. moll. 90 pts. may be tried. It should be remembered that chrysarobin stains linen and clothes.

In **eczema between the scrotum and the thigh**, or other surfaces, a bag, made of muslin and partially filled with powdered talc (87 per cent.), powdered starch (10 per cent.), and salicylic acid (3 per cent.), should be continuously applied.

Eczema of the menopause is best treated by ichthylol 5 gr. (in capsule) after each meal.

When varicose veins are present in eczema of the legs, elastic bandages should be worn.

EMBOLISM, CEREBRAL. See APOPLEXY.

EMPHYSEMA.

When this condition is present the patient should be warned to (1) avoid any cause of respiratory strain, such as laborious manual work, straining at stool, blowing wind instruments, or any form of exercise which is attended by dyspnoea; (2) avoid anything likely to develop an attack of bronchitis.

In order to *harden the mucous membranes*, patients should lead an open-air life as far as possible during the warm weather. As the cold weather approaches they should, if possible, continue this; in any case they should avoid overheated rooms and abrupt changes of temperature. In elderly patients an open-air life cannot be prescribed with much benefit except in warm climates. Patients should, if possible, winter in some warm climate, such as Falmouth, Torquay, or abroad, from about the middle of October till May.

Attention should be paid to the *general health*. Dyspepsia, and especially flatulence, aggravate the dyspnoea, and should if possible be corrected. A stout emphysematous patient, whose kidneys are healthy, benefits by a diet in which carbohydrates are diminished. A thin, emphysematous patient should be fed up; such a patient often benefits by 2 dr. of cod-liver oil at bedtime.

Although *medicines* cannot be expected to relieve the condition permanently, yet an occasional course of liq. arsenicalis 8 to 5 m. for a month, followed by a course of pot. iodid. 8 to 8 gr., for three to six weeks, is often of considerable value.

If secondary effects, in the heart or circulation, are present, strophanthus or digitalis and nux vomica are of service. Actual cardiac failure should be treated on the lines laid down under that heading.

Considerable benefit is obtained from *compressed-air baths*. Patients sit and breathe for a couple of hours daily in a chamber, the atmosphere of which has been gradually compressed by $\frac{1}{2}$ to $1\frac{1}{2}$ atmosphere. A bath of this kind every other day for two months is usually enough. If dyspnoea is much increased by this procedure the baths should be avoided.

If asthmatic attacks occur in association with the emphysema, the patient should be treated for the asthma.

EMPYEMA.

As soon as the presence of pus is determined, the ordinary operation for empyema should be performed. There is only one exception to this rule. In cases in which there is a large accumulation of pus, and the patient is almost at the point of death, aspiration should be performed, as in ordinary pleural effusion, and an operation undertaken as soon as the patient is in a fit condition to stand the shock—i.e. in twenty-four to forty-eight hours as a rule.

ENDOCARDITIS. See HEART, DISEASES OF (pp. 142 to 149).

ENTERIC FEVER. See TYPHOID FEVER.

ENTERITIS. See DIARRHŒA.

ENURESIS. See INCONTINENCE OF URINE.

EPILEPSY.

During an attack the patient should be laid flat, all constrictions of clothing should be loosened, artificial teeth should be removed, and care should be exercised that the tongue is protected, if necessary by placing something between the teeth. Occasionally an inhalation of 5 m. nitrite of amyl may lessen the severity of an attack. After the fit the patient should be allowed to doze or sleep undisturbed, but he should be kept under observation. The severe headache so often present may be relieved by 10 gr. of phenacetin.

An attack may be prevented occasionally when a definite warning of its onset is experienced. The tight gripping of the arm of a chair, pinching or pricking the area affected, or a tight ligature may be tried. When twitching of muscles is the first sign, these muscles should be forcibly extended. In some cases a whiff or two of chloroform will ward off an attack, in others amyl nitrite is of service.

Treatment between the attacks.—When there is an obvious cause for the attack, such as old fracture of the skull &c., surgical measures should be considered. When epilepsy occurs suddenly in adults, syphilis is often the cause, and the treatment should be on syphilitic lines. In the usual type of epilepsy everything should be done to render the individual as robust as possible. Regular meals, plenty of fresh air, attention to the skin and bowels, regular exercise, and freedom from excitement and worry should be prescribed. It is of great importance that any cause of reflex disturbance should be rectified. Thus ocular, aural, nasal, and stomachic troubles should at once receive attention. Constipation is often a determining cause of a fit, and should be avoided.

Diet.—At first the patient should be placed on a vegetarian diet. Later fish and eggs may be added, but all epileptics do well to avoid butcher's meat. When bromides are given, their effect is considerably increased if all salt is as far as possible excluded from the diet: bread should be made without salt, and salt should not be used as a condiment or in cooking. *Alcohol* should be forbidden.

Medicinal treatment.—In the great majority of cases we must depend on bromides. *When the attacks are very infrequent* it is sufficient to give bromides for six weeks or so after an attack, and to withhold them afterwards unless the patient begins to show some sign of nervous irritability. In cases of *nocturnal epilepsy* it is sufficient to give a large dose of bromides ($\frac{1}{2}$ to 1 dr.) at bedtime.

In *ordinary cases* the following mixture may be given thrice daily: Potassii bromid. 15 gr., sodii bromid. 10 gr., ammonii bromid. 5 gr., liq. arsenic. 8 m., tr. calumb. 80 m., aq. ad 1 oz. This mixture should be given twice a day twenty minutes after food, and at bedtime, with at least half a pint of water. Each case must be treated on its merits. Our aim is to find the dose of bromide which will lessen the frequency and severity of the fits. As a rule, 1 dr. a day is enough; in many cases a smaller quantity suffices; in others larger doses are required. If we start with the mixture mentioned and the fits diminish, the dose of bromide may be cautiously diminished. If then the fits increase the dose must again be increased. If the original mixture is unable to control the fits, the dose must be increased gradually; and when it is found that the fits are controlled, the dose may be cautiously diminished. The treatment should continue for two years after the last fit, and should be left off gradually.

STATUS EPILEPTICUS.—Hyoscine hydrobromide $\frac{1}{16}$ gr. may be given hypodermically, or 80 gr. chloral may be given every hour by the rectum. If hyperpyrexia is present the cold bath and sponging should be tried. When

the attack continues, and there are signs of cardiac failure, strychnine should be given hypodermically.

EPISTAXIS.

In most cases this symptom ceases spontaneously. In no case should active measures for its cessation be employed unless it is severe and persistent.

In most cases it is sufficient to place the patient on his back, to apply cold compresses to the upper part of the spine, to apply pressure within the nose, and, if necessary, to apply heat to the feet. In the majority of cases the source of bleeding can be seen by means of a speculum, and the bleeding stopped by the application of the galvano-cautery. In other cases a nasal douche of 1 in 10,000 adrenalin is of service. The administration of calcium lactate 1 dr. is often of value and may be repeated in two hours. If this fails, 20 c.c. of blood-serum, not more than two weeks old, should be given by the mouth. This dose may be repeated in four hours. Antidiphtheritic serum may be employed if ordinary serum is not available. Plugging of the nostrils should only be employed when other measures have failed, or when there is some gross local lesion such as ulceration or growth.

When the bleeding tends to return from time to time, calcium lactate should be given in 20 gr. doses thrice daily for a week.

ERYSIPELAS.

This disease runs a definite course of five to six days, and drugs have little effect upon it. The patient should be isolated and care taken to prevent the spread of the disease. If there is any fever, the patient should be confined to bed in an airy room.

The *diet* should be sustaining and easily digested, consisting chiefly of milk, broths, and jellies. Alcohol in most cases is essential, brandy or port being the best form.

Medicinal treatment.—Calomel 5 gr. should be given at the onset, and subsequently daily attention paid to the bowels. The following routine mixture may be employed

thrice daily: Tr. ferri perchlor. 80 m., magnes. sulph. 80 gr., sp. chlorof. 10 m., aq. menth. pip. ad 1 oz.

Local treatment.—An ointment consisting of an equal quantity of ichthyol and vaseline may be spread over the affected part, and a mask of lint may, if necessary, be used in addition.

Vaccine treatment.—The use of a stock streptococcic vaccine in doses of 2 million cocci every four days is stated to give good results.

ERYTHEMA.

ERYTHEMA IBIS may be treated on the same lines as *Erythema nodosum*. If the salicylates fail, quinine 2 gr. should be given thrice daily. The affected parts should be kept clean, and ung. hydrarg. 5 gr. to 1 oz. should be applied.

ERYTHEMA MULTIFORME.—If the origin of this symptom—*e.g.* rheumatism or indigestion—can be found, the cause should be treated. In all cases careful attention should be paid to the bowels and digestion. The *itching* may be allayed by tepid sponging with a solution of bicarbonate of sodium (1 oz. to 2 pints) or baths of bicarbonate of sodium ($\frac{1}{2}$ lb. to 20 gallons) may be employed. If this fail, we may try 1 oz. of strong solution of subacetate of lead with 20 oz. of distilled water, or boracic acid (1 oz. to 8 pints of water). *Internally*, if there is no indication for salicylates or quinine, the best routine treatment is sulphide of calcium $\frac{1}{4}$ gr., in a coated pill, every six hours.

ERYTHEMA NODOSUM.—Salicylate of sodium 15 gr. or aspirin 10 gr. should be given. The patient should be kept at rest. The painful parts should be enveloped in warm absorbent wool. The bowels should be regulated, and the diet should be light and easily digested.

ERYTHEMA SCARLATINIFORME and also **PELiosis RHEUMATICA** may be treated on the same lines. If hæmorrhages in the latter are marked, calcium lactate in 20 gr. doses thrice daily may do good, or 20 c.c. fresh horse-serum may be given each day by the mouth.

EXFOLIATIVE DERMATITIS. See **PITYRIASIS RUBRA.**

EXOPHTHALMIC GOITRE. See **GOITRE.**
FACIAL PARALYSIS.

In *syphilitic cases*, iodide of potassium and mercury should be given; in cases due to *suppurative conditions* of the middle ear, operative conditions are necessary; in cases *due to a wound*, primary suture of the nerve-tissue should be performed.

In the ordinary case which follows exposure to cold, a flying blister should be applied over the site of the stylo-mastoid foramen, and calomel 5 gr. should be prescribed. The patient should be protected against cold. If pain is severe, antipyrine 10 gr. should be given, and may be repeated. A course of small doses of potass. iodid. (5 gr.) is now of service. The paralysed muscles should be massaged daily, and should be stimulated with the continuous current for fifteen minutes thrice daily, the positive pole being placed on the back of the neck. The current should be just strong enough to produce muscular contraction. Such treatment usually effects a cure; but if after six months' trial the condition remains, the question of facio-hypoglossal anastomosis should be considered.

FAVUS.

For treatment to be successful, the general health must be improved. The crusts must be removed by a boracic-starch poultice. A teaspoonful of boric acid is mixed with four tablespoonfuls of cold-water starch (preferably wheaten starch) and enough cold water to give the mixture the consistency of cream. A pint of boiling water is gradually added, the mixture being constantly stirred until a translucent jelly is obtained. When this is cold, it should be spread on a cloth and applied to the head. Four applications should be made daily until the crusts are removed.

When the crusts have been removed, x-rays should be used daily for depilation. Great caution is required so

that too great a reaction is not caused, or otherwise baldness results. In addition, some antiseptic should be thoroughly rubbed into the scalp. The best ointment for this purpose is copper sulphate 1 dr. in an ounce of lard.

FLATULENCE.

The origin of the trouble is usually found both in the stomach and in the intestines. In some cases only the stomach is at fault; in others only the intestines. When the stomach is at fault, the real cause may be pyloric obstruction, which can only be dealt with efficiently by operation; when stasis or fermentation is due to atony of the stomach, daily lavage, careful feeding, and a mixture of acid. nitro-hydrochlor. dil. 8 m. with tr. nuc. vom. 7 m. are indicated (*see* CHRONIC DYSPEPSIA, p. 105). Where the intestine is at fault, the probable cause is constipation. This is best overcome by the use of copious water enemata, and the use of aloin $\frac{1}{4}$ gr., strychn. sulph. $\frac{1}{8}$ gr., ext. bellad. $\frac{1}{8}$ gr., pulv. ipecac. $\frac{1}{4}$ gr. as a pill twice daily. In addition, the diet should be regulated so that indigestible food is excluded, especially vegetables such as cabbage, which contain large quantities of cellulose. At least $2\frac{1}{2}$ pints of fluid should be taken in the twenty-four hours; it is best that fluid should be taken an hour and a half before or after meals, very little being taken with the meals. Various antiseptics and carminatives are useful, such as carbolic acid 2 m., pulv. glycyrrh. 1 gr. in pill after meals.

For immediate relief, the best drug is oil of cajuput, which may be given in mixture—Spirit. cajuput. 10 m., tr. cardam. co. 30 m., tr. carminativ. 15 m., syr. aurant. 30 m., aq. ad 1 oz., as required, in water; or in pill form—Ol. cajuput. 1 m., ext. gent. 1 gr. In marked intestinal flatulence, oil of cajuput 5 to 15 m. in an enema of soap and water is often most effective.

FRÄNKEL'S EXERCISES.

The success of this form of treatment depends largely upon the active co-operation of the patient. The exercises

must be directed by an intelligent assistant, or by the practitioner himself.

The method, whilst highly successful in many cases, is not so in all. Serious cardiac disease, bladder-trouble, arthropathy, and perforating ulcer are contra-indications.

It is essential to success that at the outset the patient should be made clearly to understand the object of the method, and that his symptoms are not due to muscular weakness, but to a defective nervous system; that consequently a process of re-education is necessary for his improvement, and that care and mental effort on his part are essential.

All the movements must be performed slowly and at the word of command, and be frequently repeated, but fatigue must be carefully avoided.

The exercises for standing and walking are to be performed first with assistance, afterwards with the aid of a stick, and finally alone. Each series must be mastered before going on to the next.

A. Exercises whilst in Bed.

1. The extended leg to be raised until the great toe touches the hand of an attendant held 18 inches above.

2. The leg is fully flexed on the thigh, and the thigh on the abdomen; it is then extended so as to touch the hand of the attendant held in the same position as before.

3. A board in which grooves are cut at regular intervals, and numbered, is placed at the foot of the bed, and the patient then slowly, and at the word of command, places his heel in specified grooves.

It need hardly be said that both legs must be separately exercised.

B. Standing Exercises.

1. Practise standing (a) with the feet separated; (b) together.
2. Alternately lift up each foot, placing it down accurately.
3. Standing on tiptoe, on heels, &c.
4. The above exercises with eyes closed.

In severe cases, as the patient may fall, precautions must be observed accordingly.

C. Walking Exercises.

1. A black line 12 inches wide is painted across the floor of the room, along which the patient is to walk, keeping the feet within its margins.

2. Walking along a similar line having cross-lines painted 12 inches apart, the toes at each step to be placed accurately at each line.

3. The same exercises along a narrowed line.

4. Walking in circles, turning round, &c.

In all cases care must be taken to prevent the feet being lifted too high and brought down heel first.

In the same manner going up and down stairs, sitting down in and rising from a chair, are to be practised.

Exercises on similar lines must be devised for the upper limbs. As already mentioned, fatigue must be avoided, and the active mental co-operation of the patient assured.

FRECKLES

May be prevented by wearing a brown or red veil. For their removal one of the best remedies is a 1 per cent. solution of perchloride of mercury in alcohol. This should be applied night and morning until some irritation is produced.

GALLSTONES.

During an attack of colic.—The patient should be kept at rest. A pint of hot water should be taken, and hot fomentations applied over the liver.

A hot bath (104° to 108° F.) often affords relief, but the patient must be watched for fear of syncope. Morphia $\frac{1}{3}$ to $\frac{1}{2}$ gr., with atropine $\frac{1}{100}$ gr., should be given if the pain is extreme. If it is thought advisable not to give morphia we may try the effect of sp. æther. 30 m., aq. chloroform. 2 dr. every quarter of an hour, for three or four doses. Good results are reported from the use of olive oil 6 oz. with whiskey 4 dr., and oil of peppermint 5 m. by the mouth, or 10 to 15 oz. of the oil per rectum.

If the above treatment fails to relieve the pain, the question of an operation should be considered.

Treatment between attacks.—*General.*—Attention must be paid to general hygiene. Exercise must be prescribed, but massage of the liver region does harm. Constipation should be prevented. Pressure of clothes, such as corsets over the liver, should be avoided. Alcohol should not be taken. Any cause of stomachic or intestinal catarrh should be avoided. Such causes are cold, excess of sweet or starchy food, rich dishes. Fats and oils do good.

Medicinal treatment.—A course of treatment at Carlsbad is often of great service. When this is impossible, or inconvenient, a tumblerful of Carlsbad water with a little hot water should be taken before breakfast, and a tumblerful of hot water before the other meals.

Two to ten ounces of olive oil may be given daily by the mouth one and a half hour before breakfast, or at any rate on an empty stomach, or larger quantities may be given by the rectum at night.

Ext. bellad. $\frac{1}{4}$ gr., podophyll. resin. $\frac{1}{4}$ gr. as a pill at night is of service.

Operative treatment.—When a positive diagnosis of gallstone is possible, and treatment on the above lines fails to induce the passage of the stones, the question of an operation should be considered, not only from the point of view of relieving the patient, but also from the point of view that gallstones may give rise to complications, such as cancer, without causing much preliminary inconvenience to the patient.

GASTRALGIA. See DYSPEPSIA.

GASTRIC ULCER.

Absolute rest in bed is the first essential until all pain has gone and until an ordinary diet can be taken.

Diet.—For the first forty-eight hours, and in some instances for longer periods, food should not be given by the mouth. Sips of hot water with sodium bicarbonate

10 gr. to 1 oz. may be allowed, and 8 pints of saline solution (1 dr. to a pint) should be injected into the rectum during the twenty-four hours. Nutrient enemata are of small service; if they are deemed necessary, the rectum should be washed out before each enema is given. Each enema should consist of beef-tea, egg, milk to $8\frac{1}{2}$ oz., to which should be added liq. pancreatin. 2 dr. and tr. opii 5 m. After the first forty-eight hours, 4 oz. of milk, with a little sugar and one egg beaten up, may be given in 1 dr. feeds every half-hour. The following day, and each succeeding day, a further 4 oz. of milk with another egg and a little sugar may be added to the diet; in consequence each feed must be increased in quantity. Thus at the end of a week the patient will be taking 28 oz. of milk and seven eggs. The milk should be increased daily now by 4 oz. to 40 oz., and six eggs should be given daily. The intervals between the feeds may be increased to an hour, and the feeds themselves increased accordingly.

If this diet suits, small quantities of lightly cooked scraped beefsteak and well-boiled rice may be added. In a day or two, if no pain results, pounded fish may be given, then plain boiled fish, then chicken, and later bread and butter, proteine biscuits, lightly done toast, &c. If pain result, the patient must return to the diet of eggs and milk; if this cause pain, starvation must be renewed for a day or two. Under such treatment the patient is usually able to take ordinary light diet by the end of five weeks, and to begin to get up.

As soon as the pain is gone and ordinary diet is reached, the patient may begin to sit up, then to get up for an hour, then for longer periods, and then to take exercise short of fatigue. Any return of pain requires a return to rest and simpler diet.

The *teeth and mouth* should receive scrupulous attention, being daily swabbed out with listerine or hydrogen peroxide 5-10 vol. per cent. When the patient is stronger, carious teeth should be rectified or removed.

Medicinal treatment.—At first the bowels should be opened by calomel 5 gr.; subsequently it is well to give calomel $\frac{1}{2}$ gr. twice daily, and, if this is insufficient, to regulate the bowels by soap-and-water enemata. If much pain is present at the commencement of treatment, bismuth. subnitras 20 gr., pulv. tragacanth. co. 5 gr., acid. hydrocyan. dil. 8 m., liq. morph. hydrochlor. 10 m., aq. ad $\frac{1}{2}$ oz. may be given every four hours at first, and then gradually omitted. If it is necessary to give this sedative mixture, a saline draught in small bulk should be given each morning. If after improvement, during which sedatives have been omitted, pain recurs, the above mixture may be given again, and in addition a return made to a simpler diet. In some instances good results have been reported of the use of *fresh horse-serum* in gastric ulcer: 10 to 20 c.c. may be given daily, with the food, for several weeks.

During convalescence.—As the patient improves, *tonic medicines* such as iron or arsenic are indicated, a useful mixture being fe. sulph. 1 gr., magnes. sulph. 30 gr., acid. sulph. dil. 5 m., aq. menth. pip. ad 1 oz., twice or thrice daily.

The patient must be warned to give in at once if pain return, and must be especially careful to avoid undue fatigue at the menstrual period. She should live under as healthy conditions as possible, and should avoid work causing excessive fatigue, and bad hygienic conditions. Tight clothing, especially corsets, should be avoided. The bowels should be carefully regulated, and the teeth kept in perfect order. An hour's rest before meals is of great assistance; and when this cannot be obtained, two hours' rest in the afternoon should be prescribed. The diet should be largely albuminous, with a restricted amount of carbohydrates, and mastication should be thorough.

If the disease is chronic and does not yield to a prolonged trial of medical treatment, the question of *surgical methods* should be considered.

Complications.—*Vomiting.*—As a rule this symptom disappears under the above treatment. If it persist, the stomach should be carefully washed out. This is best done as follows: $\frac{1}{2}$ gr. of morphia is injected and the throat anæsthetised with cocaine. A soft stomach-tube should then be allowed just to enter the stomach, but not to extend much beyond the cardiac orifice. The stomach may be washed out with warm water containing sod. bicarb. 10 gr. to 1 oz.

Hæmorrhage.—This symptom tends to subside of itself if the patient is kept at absolute rest. No food should be given. Calcium lactate 80 gr. to 1 dr. should be given by the rectum at once, and repeated in two hours if necessary. If this fail, 20 c.c. fresh horse-serum (or antidiphtheritic serum) may be given twice daily by the mouth or rectum. If the serum also fail, the stomach should be carefully washed out, as above, with iced water until all blood has been removed. If collapse occur, hot applications should be made to the feet, normal saline injected subcutaneously, and injections of ether or camphor given. As soon as hæmorrhage has ceased, calomel should be given, and followed by salines.

Perforation calls for *immediate* operation.

GASTRITIS. See DYSPEPSIA.

GERMAN MEASLES. See RUBELLA.

GIDDINESS. See VERTIGO.

GLOSSITIS.

The cause should, if possible, be ascertained and any source of irritation, such as carious teeth, removed. Smoking should be prohibited. Very hot, or cold, or highly spiced food should be avoided. Care should be taken to avoid breathing through the mouth as far as possible. A mouth-wash consisting of bicarbonate of soda 10 gr. to 1 oz. is useful.

Syphilitic glossitis should be treated by small doses of potassium iodide and mercury, and the tongue itself should be bathed for ten minutes, thrice daily, in a solution of $\frac{1}{4}$ gr.

perchloride of mercury in 1 oz. of water. If the glossitis is due to *mercurialism* or *iodism*, these medicines must be stopped, the bowels must be opened, and a bland diet prescribed. If there is *great swelling*, the tongue should be scarified, or leeches may be of service. If *pus is present*, it must be evacuated. These severer cases are usually due to staphylococcic or streptococcic infection. The micro-organism present should be isolated and vaccine treatment given (see VACCINE THERAPY).

GLYCOSURIA. *See also* DIABETES MELLITUS.

Transient cases of glycosuria require no treatment save moderation in the carbohydrate intake, and an occasional examination of the urine. Permanent glycosuria in obese, gouty, or alcoholic subjects must be treated as a mild form of diabetes mellitus.

GOITRE.

1. **SIMPLE PARENCHYMATOUS.**—All cases should be treated, if possible, on medical lines, but *surgical measures* must be considered if (i) there is pressure on the trachea or paralysis of the vocal cords, (ii) or severe pain, (iii) if the tumour is steadily increasing in size, (iv) or the patient objects to the deformity of even a stationary tumour.

General treatment.—Attention should be paid to the general health. *Distilled water*, such as *Salutaris*, should be given. The patient should be removed from districts where the disease is common.

Local treatment.—Counter-irritation with iodine is of service. When a hot sun is available, an ointment consisting of biniodide of mercury 5 to 10 gr., adip. benzoat. 1 oz., may be rubbed on the surface for ten minutes, and the patient then directed to expose the goitre to the sun until he is unable to bear the smarting longer. After this, zinc ointment should be applied. Such treatment may be prescribed once a week.

Medicinal treatment.—Potassium iodide should be tried in the first instance. Pot. ioid. 10 gr. thrice daily,

with tr. iod. 1 m., may be given, and then the dose should be gradually increased. If the iodide is of assistance, iron or arsenic may be given in addition. If, however, the iodide mixture fails to reduce the size of the tumour in a fortnight, we may try ext. thyroid. 1 to 2 gr. at night only. This single dose in the day is often sufficient; in other cases it may be necessary to give 8 gr. twice or even thrice daily. If the pulse-rate is increased more than twenty beats per minute, the dose of thyroid must be lessened.

2. EXOPHTHALMIC GOITRE.—Drugs in this disease are of secondary importance. Our chief endeavour must be to correct any cause of reflex disturbance, to build up the general health, and to protect the patient from worry. The best results are obtained by sending patients to places or institutions where they can obtain peaceful rest, with freedom from noise, and where they can enjoy pure and bracing air among cheerful and pleasant surroundings. In other words, the best treatment is a 'rest-cure,' carried out under fresh-air conditions similar to those which are to be found in a sanatorium. Rest is essential: at first complete rest in bed, and later twelve hours in bed, with rests before meals. After the rest-cure a very gradual return should be made to ordinary conditions. Walking is the most suitable form of exercise when exercise is allowed.

Medicinal treatment.—Ten-minim doses of strophanthus three or four times a day assist in reducing the heart's irritability, as do cold applications to the precordial region, neck, and back, and applications of a weak continuous current (up to 10 cells) between the cervical spine and the thyroid gland. A course of liq. arsenicalis 5 m. thrice daily is of service. Five-grain doses thrice daily of *Moebius' antithyroidin* lead in some cases to recovery; but the use of this remedy (which is expensive) should always be combined with fresh air and rest.

Complications.—*Diarrhœa* is best controlled by rest, milk diet, and acid. sulphur. arom. 15 m., tr. opii 5 m., tr.

capsici 8 m., tr. cardam. co. 80 m., aq. cinnam. ad 1 oz., thrice daily.

Vomiting is best met by a hypodermic injection of morphia, and lavage. If this symptom is severe, rectal or subcutaneous injections of normal saline solution should be given.

When the case is a severe one and shows no improvement under medical treatment, or where life is threatened, the question of *removal of a portion of the thyroid gland* should be considered. Of 127 cases operated upon, 75 per cent. recovered completely, whilst death occurred in 8 per cent. No operation should be undertaken if the heart is seriously weakened, and general narcosis should be avoided.

GONORRHŒAL RHEUMATISM. See RHEUMATISM, GONORRHŒAL.

GOUT.

In an acute attack.—The patient should be kept in bed, if possible, until the acute symptoms have passed. In any case, the affected limbs should be kept at rest until the swelling has subsided; they should be protected from pressure by means of a 'cradle' or other appliance, and should be treated locally with hot fomentations, such as extract. opii liq. 2 dr., liq. plumbi subacet. $\frac{1}{2}$ oz., aq. ros. ad 20 oz.

Diet.—This should consist of milk, bread and milk, weak tea, water biscuits or thinly buttered toast, with abundance of water such as Salutaris. As the acute symptoms subside, a gradual return may be made to the diet mentioned under chronic gout. *Alcohol* should be forbidden unless the condition of the heart calls for its administration. In the latter case, old brandy, well diluted with Salutaris water, should be given.

Medicinal treatment.—At the onset, pil. hydrarg. 8 gr. should be given at night, and followed in the morning by a dose of Epsom salts. Subsequently the following

pill may be given each night: Podophyllin $\frac{1}{4}$ gr., ext. hyoscyam. 1 gr., ext. colocynth. $1\frac{1}{2}$ gr. At the onset of the attack, a 30 m. dose of vin. colchici should be given. This may be followed by vin. colchici 15 m., pot. citrat. 1 dr., aq. chlorof. ad 1 oz., thrice daily. As the colchicum may produce extreme depression, its administration should be carefully watched, and the dose gradually diminished.

Sleeplessness is best met by trional in 15 to 20 gr. doses. Opium should, if possible, be avoided.

CHRONIC OR SUBACUTE GOUT.—**General treatment.**—This consists in regulating the diet, promoting the metabolism of the liver or in relieving the congestion of the portal system, and in promoting the elimination of the toxic agents of gout. We can certainly diminish the severity of the disease, and in many instances prevent its recurrence, by regulating the solid and fluid intake, the action of the bowels, and the amount of exercise. The habits should be regular, 'Early to bed and early to rise' being a useful motto.

Exercise.—It is very important that sufficient exercise should be taken daily. Smart walking is the best form. Horse-exercise and golf may be advised.

Diet.—No hard-and-fast rule can be laid down, and the personal factor is an important one. Full consideration should be given to the patient's own experience of what is good for him in most cases. Thorough mastication of all foodstuffs does much to lessen intestinal putrefaction, which plays such an important part in causing an attack of gout. The diet should not be too stringent, and no very abrupt change should be made. Further, the diet should be simple, and the meals should not be made up of too many dishes.

Animal Food.—Fish, chicken, game, and meat may be taken by most gouty people in moderation, but red meat should be avoided in cases in which there is evidence of renal inadequacy.

Carbohydrates.—This class of foodstuff often disagrees with gouty people. When much flatulence is present, the less carbohydrate food taken the better. In all gouty people this class of foodstuff should be given in strict moderation; in fat patients and those suffering from glycosuria no sugar should be permitted. In others, a trial of small quantities of sugar may be made. Similar rules apply to potatoes, though in many cases fried potatoes may be allowed. Bread may be given in the form of toast, pulled bread, rusks, or zwieback.

Fat, such as bacon fat, when properly cooked, and *small* quantities of butter, may be permitted.

Fruit.—Any fruit which in the experience of the patient does not disagree with him may be taken. It should be taken between breakfast and lunch, and not at meals, and should be well masticated. Apples and oranges are the best kinds.

Alcohol.—In the great majority of instances alcohol should be avoided. In those with enfeebled digestion a little whiskey or brandy or light Moselle *with meals* may be permitted. The best drink is Salutaris or some form of mineral water such as Vichy or Contrexéville. Dry cider may be permitted.

Medicinal treatment.—Free diuresis should be encouraged by full draughts of Vichy, Salutaris, or Contrexéville water, and, if necessary, potassium citrate should be pushed until the urine is alkaline. These measures are assisted by the avoidance of table salt. Lithia salts are best avoided in the majority of instances.

The *liver should be stimulated*, when necessary, by one dose of blue pill 8 gr., followed by a dose of Epsom salts. These measures are assisted when they are associated with a course of sodii bicarbon. 15 gr., tr. nuc. vom. 5 m., inf. gent. co. ad 1 oz. fifteen minutes before lunch and dinner, and a pill at night containing ext. euonymi sicc. 1 gr., ext. colocynth. co. 1 gr., pil. hydrarg. 1 gr.

So long as there are definite gouty manifestations present, a *routine mixture* containing vin. colchici 5 m., sodii salicyl. 10 gr., pot. bicarbon. 80 gr., aq. chloroform. ad 1 oz. may be given with 4 dr. of fresh lemon-juice whilst effervescing, thrice daily an hour after food. Four to six troch. sulph. et guaiaci co. taken during the day for several weeks do much to ward off attacks. In some people these lozenges act excessively on the bowel; in such cases the sulphur may be omitted and the amount of guaiacum reduced.

Treatment of the joints.—So long as swelling persists, the limb should be elevated. The hot *douche*, followed by sponging with a saturated solution of common salt, is of value. Where improvement has set in, gentle *massage* and movement are of much assistance in many cases, and may be usefully combined with *galvanism*. Electric light and superheated *air-baths* are of service in comparatively recent cases. In the more chronic forms the vapour-bath is of more value.

Spa treatment.—In chronic cases this should be prescribed whenever possible, as the treatment is more systematic than is usually obtained in the patient's own house. The choice of a spa depends on many circumstances. As a rough guide it may be said that Bath, Buxton, Harrogate, Aix-les-Bains, and Carlsbad are useful for gouty deposits; Harrogate, Carlsbad, Vichy, Wiesbaden for gouty dyspepsia; Harrogate, Homburg, Carlsbad, Marienbad, Kissingen, for portal congestion and glycosuria; Ems and Royat for gouty respiratory affections; and Aix-les-Bains, Llandrindod, and Harrogate for gouty skin-affections.

GRAVEL. See also STONE IN KIDNEY.

In mild cases much relief is afforded by the aid of mineral waters and an appropriate diet.

If profuse hæmaturia, pyelitis, or severe colic occur, an operation is necessary as a rule.

Diet.—In uric-acid cases. (a) *Severe cases.*—The diet should be purin-free, and should consist essentially of milk, bread, cheese, eggs, rice, and vegetables.

(b) *Mild cases.*—Here the diet may, in addition to the above, contain fish and meat in moderation.

Liquids.—Contrexéville or Vichy water should be taken freely during the day, and at night 1 dr. of citrate of potash in half a pint of hot water.

Spa treatment.—In obstinate cases benefit results from treatment at Vichy, Contrexéville, Wildungen, and other spas.

GRAVES' DISEASE. See GOITRE, EXOPHTHALMIC. **HABIT-SPASMS (in childhood).**

The child cannot help the spasm, and should not be scolded nor have its attention drawn to the subject. Refraction errors, or other source of reflex irritation, such as decayed teeth, adenoids, worms, phimosis, should be remedied if present. More important still is the removal of all mental strain, and the necessity of the child having a regular open-air life.

HÆMATEMESIS.

This symptom may arise from many causes, such as gastric ulcer, cirrhosis of the liver, cancer of the stomach, acute or chronic congestion, &c. In all cases attention must be directed to the cause, as soon as this symptom has yielded to treatment. In all cases the patient should be kept absolutely at rest, with the head somewhat lowered, and no food should be given by the mouth for twenty-four to forty-eight hours. Rectal enemata are of little value. Two to three pints of normal saline should be injected into the rectum during the twenty-four hours. The sucking of ice often leads to flatulence, and seldom does good. An ice-bag may be placed over the epigastrium. If the patient is restless, morphia $\frac{1}{4}$ to $\frac{1}{2}$ gr. should be injected. Calomel 5 gr., followed by a dose of Epsom salts in eight hours, should be given when the hæmorrhage is dependent on congestion, and the bowels subsequently regulated by magnesium sulphate or enemata. Daily, or twice daily, doses of 20 c.c. fresh horse-serum are of value in checking the hæmorrhage. If this is not available, 30 gr. of calcium

lactate may be given by the rectum every six hours for three doses. In cases of marked collapse strychnine injections, together with injections of normal saline subcutaneously, should be given.

If the bleeding continues uncontrolled, an *operation* is seldom of value, though gastro-enterostomy has been of service in a few cases of duodenal hæmorrhage. In these severe cases the patient should be given $\frac{1}{2}$ to $\frac{1}{4}$ gr. morphia hypodermically and the effect of washing out the stomach with ice-cold water tried. To do this, the pharynx is sprayed with cocaine and the stomach-tube introduced *just* beyond the cardiac orifice. Ice-cold water is then carefully poured in to the amount of a pint.

After twenty-four hours from the commencement of treatment a little water may, as a rule, be given by the mouth, and then a little milk. The return to ordinary diet must be dependent upon the rate of progress and the cause of the hæmatemesis. The stools should be inspected daily in case melæna occur without further hæmatemesis.

HÆMATURIA.

When this symptom is due to medical causes, the patient should be kept at rest. A bland diet should be given, and anything likely to irritate the kidneys or bladder withheld. The bowels should be well opened by a saline draught. For the hæmorrhage calcium lactate 20 gr. every six hours may be tried, together with local applications of cold over the seat of hæmorrhage. The oral administration of 20 c.c. of fresh horse-serum each day for a few days is of value in some cases.

HÆMOGLOBINURIA.

Treatment is symptomatic. During the attack our chief efforts are to prevent suppression of urine and cardiac failure. The patient should be kept warm and at absolute rest in bed. Four ounces of water should be given at least every hour until convalescence is established. If vomiting is present, half a pint of warm water should be injected

into the rectum every hour. If the patient cannot retain the water by the mouth or rectum, large subcutaneous injections of normal saline solution should be given. Cardiac failure must be met by absolute rest and cardiac stimulants. Inhalations of amyl nitrite 5 m. (in capsules) will sometimes cut short or prevent an attack. If there is a history of malaria, quinine 10 gr. should be injected intramuscularly once a day. If there is a history of syphilis, full doses of pot. iodide should be tried. As convalescence sets in, iron and arsenic may be given. The patient should avoid exposure to cold, as nothing causes relapses so frequently. If malaria is the cause of the symptom, the patient should avoid any malarious country in the future.

HÆMOPHILIA.

When bleeding has commenced, absolute rest is necessary. Pressure should, if possible, be applied to the bleeding spot. 1 dr. of calcium lactate may be given by the mouth or rectum and repeated in two hours. This drug may then be given in 20 gr. doses every six hours for a few days. The oral administration or the subcutaneous injection of 20 c.c. fresh serum at once, and subsequently once a day, is of value.

HÆMOPTYSIS.

Pulmonary tuberculosis accounts for the presence of this symptom in the majority of instances. Where some other cause is present and requires attention the treatment is practically the same. In some instances, such as when the hæmoptysis is due to mitral stenosis, this symptom does not call for active treatment unless it is excessive, in which case treatment is the same as in other forms of hæmoptysis.

HÆMOPTYSIS DUE TO CAPILLARY OOZING.

—When there are streaks of blood in the expectoration, or when the expectoration is constantly tinged with blood, nothing more need be done than to warn the patient against undue exertion and to prescribe a saline purgative.

When the bleeding is more copious, the patient should have absolute rest in bed and $\frac{1}{4}$ grain of morphia given

hypodermically at once. He should not be examined for a few days, and should not be allowed to speak. Food should be withheld for the first twelve hours; milk may then be given frequently, in small quantities, and cold rather than hot, for twenty-four hours, and then, as a rule, a more generous diet. Ice may be sucked, but in limited quantity, as excess leads to flatulence, or the thirst may be relieved by iced lemon-water. If there is much weakness of the heart, stimulants may have to be prescribed. An initial dose of calomel 5 gr. should be given, and the bowels should be kept loose for a few days by alum. 15 gr., magnes. sulph. 40-60 gr., acidi sulphur. dil. 10 m., tr. card. co. 20 m., aq. chlorof. ad. 1 oz. three or four times a day. If the symptom is troublesome, calcium lactate in 20 gr. doses thrice daily may be tried, and a 1 dr. dose may be given immediately after a hæmorrhage. If other measures fail, 20 c.c. fresh serum may be given once daily by the mouth for a few days. If cough is persistent, heroin $\frac{1}{10}$ gr., in pastilles, is the best sedative. As the patient improves, the diet may be increased and greater exertion allowed. When the patient is convalescent the action of the bowels should be regulated, and acid. sulph. dil. 15 m., inf. gent. co. 1 oz. may be given thrice daily.

HÆMOPTYSIS FROM RUPTURE OF AN ANEURYSMAL DILATATION IN THE LUNG-TISSUE.—Absolute rest is essential. The bowels may be left to nature for twenty-four hours, and then opened, if necessary, by an enema. Food should be withheld at first, and then small quantities of milk may be allowed. One-sixth grain of morphia may be given at once, and repeated if necessary. Calcium lactate 1 dr. should be given, and repeated if necessary in two hours. If other measures fail, the oral administration of horse-serum in 20 c.c. doses may be tried, two doses being given each day for a few days.

HÆMORRHAGE FROM INTESTINES. See
MELÆNA.

HÆMORRHOIDS.

In any case in which piles are threatened or in which the piles do not require immediate surgical attention, much may be done by the following treatment. The patient should avoid sedentary habits, and should have open-air exercise. Meals should be regular and moderate. Alcohol should be avoided. Constipation does great harm, and a course of magnesii sulph. 80 gr., acid. sulph. dil. 10 m., fe. sulph. 1 gr., inf. calumb. 1 oz., taken before breakfast, and again at 11 A.M., is most helpful.

After the stool, any prolapsed pile should be gently pushed into the bowel. The use of cotton-wool is preferable to the use of paper. Great care should be taken to keep the anus clean. If there is much pain, hazeline ointment with 1 per cent. cocaine may be introduced into the bowel. If there is much irritation, the use of cold water enemata (5 to 10 oz.) is of service. Relief is afforded in the case of inflamed piles by applications of a mixture of milk $\frac{1}{2}$ pint and ext. opii liq. $\frac{1}{2}$ dr., liq. plumb. subacet. $\frac{1}{2}$ oz., aq. ad 10 oz.

HAY FEVER.

Prophylactic treatment.—If possible, the patient should be removed from the source of irritation in the hay season—*i.e.* from the last week of May to the second week in July. A sea voyage effects this best. Seaside climates are better than inland. Cotton-wool in the nostrils and blue goggles are of assistance.

General treatment.—The general health should receive attention. Dyspepsia or other cause of reflex irritation should be remedied. Acid. arseniosi $\frac{1}{2}$ gr., aloin $\frac{1}{2}$ gr., strychnini $\frac{1}{8}$ gr., pil. fe. 4 gr., as a pill, may be given twice a day after food. In very severe cases Weir-Mitchell treatment is of great service.

Local treatment.—Various drugs, such as cocaine (1 to 2 per cent.) and adrenalin, are useful, but it is imprudent to use them in chronic cases. The interior of the

nose and the nasopharynx may be freely swabbed out with glycerin. acidi carbolici. 2 oz., quin. hydrochlor. 2 dr., hydrargyri perchlor. 1 gr., heated to form a solution. This application causes some aggravation of the symptoms at first. *Pollantin* (a patent liquid or powder with which instructions are issued) may be applied to the conjunctivæ and nasal mucous membrane. Its constant use during the hay-fever season is sometimes of considerable service.

Operative treatment.—This line of treatment is the most satisfactory. Any gross abnormality in the nasal cavities should be corrected. In cases where no gross abnormality exists, much may be done by the use of the galvano-cautery. If any tender spot is detected it should be cauterised. In some cases cauterisation in the neighbourhood of the tubercle of the septum on alternate sides at intervals of a week is successful. In others the best results are obtained by burning more deeply in the same area, or by superficial cauterisation of the anterior ends of the middle turbinals, or by linear cauterisation of the inferior turbinals.

HEADACHE.

The treatment of headache may be considered under the headings—(1) Occasional Headache; (2) Recurrent Headache; (3) Migraine.

In the headache of acute disease and in certain chronic diseases such as renal disease, this symptom may be treated, if severe, by one of the remedies mentioned in the next paragraph, but for its relief we must depend chiefly on the treatment of the disease or condition causing it.

OCCASIONAL HEADACHE.—This is usually relieved by the following mixture: Phenazon 5 gr., caffein. citr. 1 gr., syrup. aurant. 80 m., aq. chloroform. ad $\frac{1}{2}$ oz. every quarter of an hour until the pain ceases; not more than four doses to be taken. Other drugs are phenacetin 10 gr., pyramidon 5 to 10 gr., ammonol 5 gr. These act best, however, if given in smaller doses and more frequently.

The patient should take pil. hydrarg. 5 gr. at night, and a simple saline in the morning. For a day or two the diet should be light.

RECURRENT HEADACHE.—In all such cases we must make careful search for the real cause, and treat it. Many headaches depend on such causes as the wearing of heavy hats or too much hair, disorders of the teeth, slight ocular troubles, the presence of pediculi capitis, or reflex disturbance from the ear, stomach, or uterus. Others depend on the presence of adenoid vegetations, hypertrophy of the middle turbinal, or on suppuration in the frontal or other sinuses, or in the antrum. All such causes must be dealt with before we can hope to relieve the patient permanently. The mixture of phenazon 5 gr., caff. cit. 1 gr., syr. aurant. 30 m., aq. chloroform. ad $\frac{1}{2}$ oz. every quarter of an hour, for four doses, will often relieve the symptom for a time.

In cases of headache due to (1) *anæmia*, rest, iron, and aperients are required; (2) *neurasthenia*, rest and massage act best: drugs should as far as possible be avoided; (3) '*congestion*,' free purgation, light diet, with exercise in the open air; (4) *gout*, a pill containing ext. aloes 2 gr., ext. hyoscyam. 1 gr., pil. hydrarg. 1 gr. at bedtime with Carlsbad salts in the morning; (5) *a rheumatic origin*, pot. bromid. 10 gr., pot. iodid. 10 gr., sodii salicyl. 10 gr., glycerin. 20 m., aq. ad 1 oz., thrice daily, is of service; (6) *cerebral disease*: in syphilitic cases, and also in others in some instances, full doses of potass. iodide (in some cases as much as 1 dr. thrice daily), together with inunctions of mercury (*see SYPHILIS*), are most useful. In *non-syphilitic tumours* opium is the only drug of service if iodides fail; in some cases operation is of value.

In certain cases of recurrent headache calcium lactate acts well. At the time of the attack 1 dr. may be given in soda-water or milk, and repeated in two hours if necessary. Four or five days later calcium lactat. 15 gr., ext. glycyrrhiz.

liq. 20 m., liq. calcis 4 dr., aq. ad 1 oz. may be given thrice daily for four or five days and repeated in ten days' time.

MIGRAINE.—Great care should be taken to discover any cause for reflex irritation, such as those mentioned under Recurrent Headache. If no such cause can be discovered, we are reduced to the following *general treatment*. A regular life, if possible in the country, should be prescribed, with exercise in the fresh air. All overwork or worry should be avoided. The diet should be free from stimulating foods, a vegetarian diet being the best for a time. Excess of meat or excess of carbohydrate food in many cases increases the number of attacks. This really means that excess of any particular kind of food is harmful, when other kinds are taken at the same time. Almost any kind of food may be digested so long as it is taken alone and the stomach is not called on to deal with a mixture containing excess of one ingredient. No alcohol should be taken. The patient should make a practice of lying down for half an hour to an hour's absolute rest before luncheon and dinner. The bowels should be carefully regulated. An occasional blue pill, followed by a saline, is invaluable. For a week or more the following mixture may be given from time to time: Magnes. sulph. 20 gr., quin. sulph. 1 gr., liq. strych. 2 m., acid. sulph. dil. 5 m., inf. aurant. ad 1 oz., thrice daily. When nervous symptoms predominate, ammonium bromide may be given thrice daily in 10 gr. doses for a week or ten days, at intervals. In some cases a course of arsenic is valuable. In others calcium lactate (15 gr.) thrice daily for four or five days is of service.

Treatment during an attack.—As soon as an attack is threatened, phenazon 5 gr., sodium salicylate 5 gr., caff. cit. 1 gr., syrup. aurant. 30 m., aq. chloroform. ad $\frac{1}{2}$ oz., may be taken every quarter of an hour for four doses. Rest in a darkened room is usually essential. No food should be taken whilst the attack is severe. In other cases, if the above mixture has failed in previous attacks,

we may try calcium lactate $\frac{1}{2}$ -1 dr. in soda-water ; or butyl-chloral hyd. 5 gr. ; sodium bromide 10 gr., sp. chlorof. 10 m., aq. menth. pip. ad 1 oz., every half-hour, for three doses, if necessary, or guarana 10 gr., sodii salicyl. 5 gr., as a powder, every fifteen minutes until four doses have been taken.

In *obstinate cases* good results have been obtained by dry-cupping between the scapulæ and in the region of the ears, by blistering the nape of the neck to the size of a five-shilling piece and keeping the resulting sore open for ten days by means of savine ointment, and by the application of a mustard-leaf to the mastoid process on the affected side.

HEART, DILATATION OF. See **HEART, DISEASES OF**, pp. 149-152.

HEART, FATTY. See **HEART-FAILURE**, pp. 149-152.

HEART, IRREGULARITY OF. See **HEART, DISEASES OF**, p. 154.

HEART, DISEASES OF.

The treatment of the various diseases and disorders of the heart is considered in the next few pages under the following headings : (1) General principles of treatment ; (2) Simple acute endocarditis ; (3) Malignant endocarditis ; (4) Chronic endocarditis—(a) Aortic stenosis ; (b) Aortic regurgitation ; (c) Mitral regurgitation ; (d) Mitral stenosis ; (e) Congenital disease ; (5) Heart-failure—(a) Threatened ; (b) Established ; (6) Symptomatic disorders—(a) Bradycardia ; (b) Cardiac pain ; (c) Dyspnoea ; (d) Faintness ; (e) Hæmoptysis ; (f) Insomnia ; (g) Intermittency of pulse ; (h) Irregularity of pulse ; (i) Palpitation ; (j) Precordial distress ; (k) Tachycardia ; (l) Vomiting.

1. GENERAL PRINCIPLES OF TREATMENT.

—In the treatment of affections of the heart we are guided by the condition of the heart-muscle much more than by any murmur which may be present. Our aim is to prevent anything which unduly taxes the heart-muscle's diminished reserve, and at the same time to arrange the patient's life so that the heart-muscle is strengthened.

We do everything in our power to avoid unnecessary raising of the blood-pressure, and at the same time endeavour to keep the heart-muscle at its normal tone. Thus we avoid the abuse of tea, alcohol, tobacco, and especially over-eating. We avoid constipation. We avoid, so far as possible, bronchitis and intercurrent disease. We avoid any source of cardiac strain due to nervous influences such as anxiety and mental effort. We avoid exercise involving undue exertion; at the same time we avoid the bad effects of insufficient exercise, and do not make our patients lead an invalid life because they happen to have a cardiac murmur. We keep a watchful eye on the action of the heart, and from time to time prescribe a course of tonics, such as iron or arsenic. When failure threatens, we prescribe rest for a time, calomel and saline purgatives, spare and highly digestible diet, and, if necessary, strychnine, and in certain instances digitalis. When failure has occurred, we prescribe absolute rest, a light (solid if possible) diet, a definite amount of alcohol, active purgation with mercurials, salines, and jalap, and then sufficiently large doses of digitalis or one of its allies.

Digitalis should only be prescribed in a case of heart-disease for weakness of the contractile power of the heart-muscle which is associated with a lowering of arterial tension and an increase of venous tension. It is essential to use an active preparation of digitalis. *Fresh* infusion is reliable, as is the tincture when obtained from a good chemist. *Soluté officinal de digitaline cristallisée* (Codex) is trustworthy, and may be given in 4-15 m. doses. Digitalin crystallised (Nativelle) in doses of $\frac{1}{360}$ to $\frac{1}{60}$ gr. in pill form once a day acts well in many cases. Digitalin may be given hypodermically in emergency, in doses of $\frac{1}{50}$ to $\frac{1}{100}$ gr. The way for digitalis must be prepared by *free* purgation. Small doses are sufficient in threatened failure of the heart, but in true failure 10 m. of the tincture should be given every four hours, and if this does not cause improvement in three

days (improvement with digitalis seldom occurs sooner), the dose should be increased to 15 m. or 20 m. Undue slowness of the pulse, with coupled heart-beats and a sense of precordial oppression or vomiting, necessitate a diminution of the dose or complete removal of the drug. The effect of this drug is, however, best watched in cases of true heart-failure by measuring the daily quantity of urine.

2. SIMPLE ACUTE ENDOCARDITIS.—This is usually the result of acute rheumatism, less frequently the result of other acute fevers. In acute rheumatism its onset can frequently be prevented by the proper administration of natural salicylates (*see* RHEUMATISM, ACUTE). In all cases our aim is to favour the establishment of compensation. Our sheet-anchor is *absolute rest* in bed until this occurs. The patient must not even be allowed to sit upright, and on no account to get out of bed for an action of the bowels. At the same time we assist nature as far as possible. We avoid the use of drugs, such as digitalis, which increase the blood-pressure, and of drugs such as salicylates, the continuous use of which weakens the heart. We avoid constipation, and give an occasional smart purge. The diet should be light and solid if possible, and excess of fluid should be avoided. Quinine is often useful. Citrates may lessen the coagulability of the blood, and so tend to prevent the deposition of fibrin or the formation of thrombi. Acid. citrici 20 gr., quin. sulph. 1 gr., aq. destill. ad $\frac{1}{2}$ oz., may be mixed with pot. bicarb. 20 gr., ammon. carb. 2 gr., sp. chloroform. 10 m., aq. destill. ad $\frac{1}{2}$ oz., and taken whilst effervescencing thrice daily. Iron may be added if anæmia is marked.

If precordial distress is marked, a small blister between the left clavicle and nipple is of value, or the continuous use of an ice-bag may be tried.

In most cases absolute rest should be enforced for six weeks at least. In cases in which aortic regurgitation is present, or in which pericarditis has occurred, the period of

rest must be longer still. When compensation appears to have been established and the pulse is quiet, an extra pillow may be allowed. In a day or two the back may be slightly raised. Then the patient may be moved to a couch. If these changes lead to a maintained increase in the frequency of the pulse, compensation has not occurred, and we must wait.

In any case the recumbent posture on a couch is necessary for another six weeks before the patient is gradually allowed to sit up, and later to take gradually increasing amounts of exercise. During the latter part of this time of enforced rest, massage of the limbs and, later, passive and resisted movements should be prescribed. In every stage symptoms of cardiac distress, such as increased frequency of the pulse, palpitation, breathlessness, mean that we are proceeding too rapidly. For the next six months great care is necessary. During these six months, and afterwards, the patient must avoid excess of diet or alcohol, constipation, anæmia, fatigue, or undue exposure to cold or conditions likely to cause an attack of bronchitis.

In some cases where there is a difficulty in maintaining compensation, Nauheim baths (Schott-Nauheim Treatment, *see* p. 268) may be of great service.

In the majority of cases compensation occurs under the prolonged rest mentioned above. When the patient is allowed to take exercise, definite rules should be laid down. It must be remembered that exercise in moderation is invaluable. Practically any exercise which does not cause breathlessness, and which is not followed by a sense of fatigue, may be allowed when compensation has occurred. Thus lawn-tennis, riding, cycling, swimming, dancing, cricket, racquets, hunting, boxing, fencing, may all be permitted within moderate limits. Severe strain, such as is incurred in racing or football, should be forbidden. In walking it is well to avoid a hill at the end of the walk. The patient should be examined at intervals, so that any excess may be stopped before it has brought about failure of compensation.

In children a sharp look-out should be kept for any rheumatic pains, and if such occur the child must rest in bed and receive immediate treatment. When patients with compensated heart-disease suffer from an attack of influenza, bronchitis, or acute fever, rest should again be prolonged, or otherwise failure of compensation is certain to occur.

8. MALIGNANT ENDOCARDITIS.—Treatment is symptomatic. Rest in bed, a fluid diet, and free stimulation with alcohol and strychnine if the pulse is failing, should be prescribed. As a routine mixture, quinine and citrates may be given.

Vaccine treatment.—This consists in isolating the streptococcus or other organism from the patient's blood, growing cultures, and preparing and administering the vaccine. Encouraging results have been obtained in a few instances.

Whilst the vaccine is being prepared from the patient's own micro-organism a stock preparation of the micro-organism found should be used. The dosage and spacing of the doses is a difficult matter. Determinations of the opsonic index give much useful information, but in such an acute infection the opsonic index is constantly fluctuating; and if it is to be a reliable guide the index should be determined at least thrice daily. A careful examination of the temperature and clinical symptoms usually afford the necessary guide both to the condition of the patient and to the opsonic index. The chief point is to avoid excessive or too frequent dosage (*see* VACCINE THERAPY). Small doses (*e.g.* streptococci 2 to 5 millions, staphylococci 50–100 millions) should be commenced with, and very cautiously increased. The interval between the doses must depend on the results obtained. A second dose may often be given after an interval of three to five days; but if increased temperature follows a dose, the next dose should be smaller (one-half or less) and, as a rule, after a longer interval (*see* VACCINE THERAPY).

Antistreptococcic (polyvalent) *serum* may be tried when the disease is due to streptococcic infection. Ten cubic centimetres may be given daily subcutaneously, or 15 c.c. per rectum, for three or four days. An interval of two or three days should elapse before a further dose is given. In some cases the temperature is increased after the use of the serum; if so, it should be given in smaller doses, such as $2\frac{1}{2}$ c.c.

4. **CHRONIC ENDOCARDITIS.**—A case treated on the principles given under simple Acute Endocarditis seldom requires treatment except for threatened or actual failure, conditions which are discussed in the following pages. The different valvular lesions require, however, a few words.

(a) **Aortic Stenosis.**—In the majority of cases treatment consists in avoiding (a) undue exertion or anything likely to increase the blood-pressure, and (b) any risk of bronchitis. An occasional course of iron is of value if anæmia is present. When the cause is syphilitic, potassium iodide 15 to 20 gr. should be given thrice daily for some weeks. If there is marked precordial pain and oppression three or four $\frac{1}{100}$ gr. tablets of nitroglycerin a day may be given. The tablets should be broken up into three or four pieces and a piece taken every hour or two hours. Aconite does harm. When dilatation is threatened or has taken place, the treatment is the same as that given under Heart-failure.

(b) **Aortic Regurgitation.**—The patient should be warned emphatically against hurry or over-exertion or mental excitement. If he have an intercurrent attack of fever, it is essential that he should have prolonged rest before being allowed to exert himself. An occasional course of fe. sulph. exsicc. 8 gr., strychn. sulph. $\frac{1}{100}$ gr., acid. arsenios. $\frac{1}{100}$ gr., syrup. simpl. q.s., as a pill, is of service. For the first two weeks a pill may be taken twice a day, and then the dose increased to two pills.

Angina pectoris is often a complication and should be treated by amyl-nitrite capsules, or $\frac{1}{100}$ gr. tablets of nitro-

glycerin broken up, a fragment (about $\frac{1}{10}$ th of a tablet) being taken every half-hour. In such cases large doses of nitroglycerin are well borne. If there is no relief, morphia should be given.

When there is marked *insomnia* small hypodermic injections of morphia are sometimes invaluable. Opium by the mouth or bromides usually fail; chloral is dangerous.

If the pulse shows an exaggerated collapse, or if any sign of dilatation occur, the patient should rest in bed for a time, and strychnine and alcohol should be prescribed. When compensation fails, it is due (1) to failure on the part of the left ventricle; (2) failure of both left and right ventricles.

(1) *In failure of the left ventricle*, rest, with light nourishing food in small quantities at a time, and alcohol are required. Sp. ætheris 80 m., sp. ammon. aromat. 80 m., liq. strychn. 5 m., tr. belladonna 5 m., syrup. zingiberis 1 dr., aq. anethi ad 1 oz., every six hours, is often of service.

As the compensation is recovered, phosphorus $\frac{1}{100}$ gr., acid. arsenios. $\frac{1}{100}$ gr., ext. cannab. indicæ $\frac{1}{4}$ gr. may be taken twice a day in pill form.

(2) *In failure of both ventricles* the patient should, as before, have absolute rest, light solid diet, and alcohol. Purgation should be free. Blue pill 5 gr., followed by a saline in the morning, should be given. If purgation does not take place, a saturated solution of magnesium sulphate may be given in $\frac{1}{2}$ oz. doses every hour until it does. In aortic incompetence the effect of purgation must, however, be closely watched, and purgatives given with greater caution than in failure due to disease of the mitral valves. Digitalis is dangerous in cases of pure aortic disease, but when failure of the right ventricle has occurred it may be prescribed as soon as purgation has given satisfactory results. Tr. digitalis 10 m., caff. citrat. 10 gr., tr. nux vom. 10 m., aq. chloroform. ad 1 oz. may be given every six hours. The use of digitalis should be carefully watched and the dose

diminished as soon as the symptoms are relieved, or fatal results may follow.

When dropsy occurs, the dose of digitalis may be gradually increased, and the effects of theobromine 5 gr. thrice daily may be tried. If these measures fail, the legs may be incised with aseptic precautions. If fluid has accumulated in the abdominal or thoracic cavities, it should be removed. Venesection as a rule should not be performed, as it often does harm in cases of aortic regurgitation.

(c) **Mitral regurgitation.**—The treatment of this condition depends on its cause.

(1) If it is due to *anæmia*, rest, together with pil. aloes c. fe. 5 gr. thrice daily, or some other iron preparation, are required. If progress is not satisfactory, small doses (5 m.) of tr. digitalis should be given. Later, change of scene and graduated exercise or Nauheim treatment (see SCHOTT-NAUHEIM TREATMENT) are of service.

(2) If it is due to *an attack of influenza*, the treatment is practically the same as in the last paragraph. Rest for a few weeks, together with tr. digitalis 5 m., tr. nuc. vomici 5 m., tr. fe. perchlorid. 5 m., inf. calumbæ ad 1 oz., thrice daily. Later, change of scene, graduated exercise, or Nauheim treatment should be prescribed.

(3) If it is *dependent on age* (a slight murmur is often found to be present in middle age and unassociated with dilatation), it requires no treatment except attention to the general health. The patient should be cautioned against undue exertion or strain.

(4) If it is due to *definite disease of the mitral valve which is well compensated*, the patient should avoid constipation, or over-filling of the stomach, exertion entailing dyspnoea, or anything likely to increase the blood-pressure or to cause bronchitis. On the other hand, exercise, short of fatigue or dyspnoea, should be prescribed. If the blood-tension increases, pil. hydrarg. 3 to 5 gr., followed by a saline, may be taken with advantage once or twice a week for a time.

(5) If it is due to *disease of the mitral valve and is associated with failure of compensation*, treatment should be on the lines laid down under Heart-failure (see p. 149). The essentials are rest, free purgation with mercurials, and then digitalis in sufficient doses. Leeching, venesection, or tapping may be necessary in addition.

(d) **Mitral Stenosis.**—In the *first stage* exercise short of dyspnoea should be taken; constipation, over-eating, and alcohol should be avoided. The patient should take care not to expose himself to conditions likely to lead to bronchitis or rheumatism.

In the *second stage*, when pain and breathlessness are present, rest is essential. A light solid diet should be given. The bowels may be freely opened with magnesium sulphate. Easton's Syrup may be given in 1 dr. doses every six hours. If the oppression is considerable, two to three $\frac{1}{100}$ gr. tablets of nitroglycerin may be taken daily for a few days. The tablets should be broken, and a fragment taken every hour or two hours if necessary. Digitalis should not be given unless there is some failure of the right ventricle, and then only after purgation and not for long. When improvement has set in, exercise short of dyspnoea may be gradually resumed.

In the *third stage*, when there is decided failure of the right ventricle, absolute rest in bed is essential. Purgation with pil. hydrarg. and salines should be thorough in all cases. When the pulse is weak, small, and irregular, and associated with violent epigastric pulsation, the application of eight leeches to the liver region or, better, venesection to 10 oz., is called for. Stimulants may be given, but should be preceded by purgation. Easton's Syrup or other mixture of iron and strychnine, together with nitroglycerin, may be given for months. Digitalis must be given with caution, as it sometimes aggravates the symptoms. In many cases it produces good results, but its use should not be continued for long. (See also HEART-FAILURE, p. 149.)

(e) **Congenital heart-disease.**—Treatment in this condition is entirely symptomatic.

5. HEART-FAILURE.—(a) **Threatened heart-failure.**—In cardiac degeneration of any kind, in chronic dilatation, in the enlarged heart due to Bright's disease or emphysema, just as in disease dependent in the first instance upon valvular mischief, attacks of precordial embarrassment, palpitation, giddiness, or tendency to syncope, may occur. In many cases there may be much distress, but in most of such cases attention to some inter-current influence, such as an indigestible meal, loaded bowels, shock, undue muscular or mental strain, is the chief indication for treatment. Complete rest in bed for a few days, a carminative draught, calomel and saline purgatives, spare and highly digestible diet (*see* example given, p. 150), with a definite re-assurance that the trouble is temporary, are usually all that is required. In most cases digitalis, strychnine, alcohol, nitrites, or iodides are not required; in many they do harm. When digitalis is necessary it is wise to give small doses—*e.g.* tr. digitalis 3 m., tr. nuc. vom. 8 m., caff. citr. 2 gr., aq. camphor. ad $\frac{1}{2}$ oz. twice daily. The treatment of particular symptoms such as pain and palpitation will be found on pp. 153, 155.

When the acuteness of the attack is over the patient should be informed of his condition, but not unduly alarmed. He should be warned against abuse of tobacco, against intemperance in eating or drinking, against exertion involving dyspnoea, against nervous strain, and exposure which may induce bronchitis. In *sypilitic lesions* potassium iodide is of great value when given in full doses. In *gouty cases* the diet should be spare, and attention should be specially directed to the excretory functions. In such cases a course of Nauheim treatment is often of service. Arsenic and moderate doses of iodides, combined with an excess of alkali, may be prescribed. In the *dilated heart of the middle-aged man due to*

strain in youth, effort should be avoided for a time, and exercise prescribed with caution. A thorough change of air, such as a long sea-voyage, is often of much service. In *dilatation due to acute cardiac strain after forty*, rest at first is essential, but it should not be carried to excess. A course of Nauheim treatment in many instances is of value. Over-feeding must be especially guarded against.

(b) **Established cardiac failure.**—The treatment here is not different in any important respect in the man of middle or advanced age with degeneration of the cardiac muscle, from what it is in an ordinary case of failure due to chronic valvular disease. It is important, however, to remember that digitalis and its allies should be used with care in failure associated with aortic regurgitation, or mitral stenosis, or suspected fatty degeneration; and that in such cases these drugs should be withheld as soon as the acute symptoms of failure have gone and compensation is once more established.

The patient should be kept in bed in a well-ventilated warm room. He should have high pillows or a bed-rest. If he cannot breathe with comfort in bed, he should be allowed to sit up in a large easy-chair. A rope and cross-bar arranged to hang in front of the patient greatly facilitates his movements. The clothing and bedclothing should be light. Hot-water bottles to the feet are of value. A nurse should be in constant attendance.

Diet.—Light solids are less likely to cause flatulence than fluid food, and should be given unless they are contraindicated by nausea or vomiting. If dropsy is present, salt should not be taken, and should be omitted from the food in cooking or baking.

Example of diet.—Breakfast, lightly boiled egg, toast and butter, or stale bread and bacon; a cup of freshly made weak China tea, or coffee, or pure cocoa. At 11 A.M., cup of broth or beef-tea, a finger of toast, half an ounce of brandy

with water. 2 P.M. : boiled sole with two large tablespoonfuls of red beef-gravy, or hot beef-tea ; stale bread, two tablespoonfuls of baked custard or milk-pudding, one ounce of brandy and water. On other days tender lean underdone roast mutton, sweetbread, game, or chicken. 5 P.M. : cup of fresh weak China tea, dry biscuits, or toast. 7 P.M. : teacup of water arrowroot or Benger's Food with one ounce of brandy. During the night two or three feeds, if awake, of beef-tea or broth.

When a diet similar to the above disagrees, peptonised milk and strong beef-essence should be given in small quantities at one to two hourly intervals.

Alcohol.—At first 3 to 4 oz. of brandy may be required ; after a few days this amount may be gradually increased to 6 oz.

If *lividity* or *dyspnœa* is or becomes extreme, eight to twelve leeches may be applied to the cardiac area, or venesection to 10 oz. may be employed. Venesection, however, is contra-indicated when the cardiac failure is due to degeneration rather than dilatation. If *dropsy* is present, and does not yield to rest and the medicinal measures mentioned later, the legs should be incised and allowed to drain for a few days. If there is *ascites* or *pleural effusion* causing embarrassment and not yielding to treatment, paracentesis should be performed at once.

Medicinal treatment.—In cases of any severity the use of digitalis should be preceded by brisk purging for one or two days. Even if diarrhœa is present purgatives are called for. Pulv. jalapæ co. 1 dr. should be given at once, and followed in six hours by a Seidlitz powder in eight ounces of warm water. These drugs should be given daily for two or three days, and then the bowels may be regulated by calomel or blue pill at night, together with a Seidlitz powder in the morning. During the first few days, and later in emergencies, sp. ammon. aromat. 80 m., sp. æther. 80 m., syr. aur. flor. 1 dr., aq. aurant. flor. ad 1 oz., may be given.

Strychnine hydrochloride $\frac{1}{60}$ gr. should be given hypodermically every eight hours for the first day or two, when the following mixture may be prescribed every four hours : Tr. digitalis 10 m., liq. strychn. hyd. 4 m., caffein citr. 2 gr., inf. seneg. ad 1 oz. If after three days no improvement takes place, the dose of digitalis should be increased to 15 m. If digitalis disagrees, tr. strophanthus may be substituted. In less urgent cases, and in some cases in which the above measures fail, excellent results are obtained from a pill consisting of pulv. digitalis fol. $\frac{1}{2}$ gr., pulv. scillæ 1 gr., pilul. hydrarg. $1\frac{1}{2}$ gr. every six or eight hours.

As improvement sets in, the digitalis mixture may be given every six hours, and the purgatives once or twice a week. When dropsy has gone stimulants should be gradually reduced, and strychnine omitted. We may now give tr. digitalis 5 m., tr. fe. perchlor. 10 m., acid. phosph. dil. 10 m., aq. ad 1 oz. twice daily after meals. The patient may be allowed to sit up gradually, and then to leave his bed for an hour or two. Any increased frequency of the pulse, cardiac oppression, or return of dropsy indicates the necessity of returning to rest. Later on, *exercise* may be allowed under careful observation of its effects. When failure is not well compensated, sudden and violent exertion must be forbidden, and the patient must avoid breathlessness and anything leading to a tendency to syncope. In the early days of exercise he should not be allowed to walk upstairs on return from exercise, but should be carried. In many cases it is desirable for the patient to live always on the ground-floor, and to avoid stairs. Altitudes over 2,000 feet do harm in most instances. Careful attention to diet and the state of the bowels should be enforced, and the patient should remain under the supervision of his medical adviser.

6. SYMPTOMATIC DISORDERS (including disorders of rhythm).—Such symptoms as pain, palpitation, and dyspnoea may be associated with functional disease of

the heart, as well as with valvular disease or disease of the arteries. In many instances the remedies and rest prescribed for the real cause remove such symptoms, but for convenience of reference their treatment is dealt with separately here.

(a) **Bradycardia.** — Dilatation of the stomach if present must be treated, as it is a frequent cause of this condition. A light diet should be taken. Exercise must be prescribed with caution, and its effects carefully watched. The most satisfactory drugs are iodides, and nitroglycerin $\frac{1}{1000}$ gr. in tablets, one tablet being taken hourly at first, and then at gradually increasing intervals.

(b) **Cardiac Pain.** — If this is due to toxic causes such as tobacco, these must be removed. If it is due to dilatation or overstrain, the same treatment as for threatened cardiac failure should be employed. If it is due to reflex disturbance from dyspepsia or other condition, the cause must be treated. In addition to such general treatment, counter-irritation by a mustard-leaf or blister to the area of pain is of value. When no cause can be found, rest, with full doses of potassium iodide, usually gives relief. In *functional cases* much benefit follows the definite assurance that no disease of the heart itself exists.

(c) **Dyspnœa.** — In most cases rest, purgation, and the use of cardiac stimulants such as strychnine soon enable the patient to breathe more easily. If fluid is present in the abdominal or thoracic cavities, and dyspnœa is urgent, paracentesis should be performed. If flatulence and distension of the abdomen are marked, ammonia-and-ether mixture does good, especially when the following enema is also given: Confect. rutæ 3 dr., infusion anthemidis ad 16 oz. A long tube may be passed into the rectum and kept there for an hour at a time. In very urgent cases venesection or leeching is called for. In functional or passing attacks a dose of ammonia and ether mixture is all that is necessary beyond rest and re-assurance. In more

severe cases morphia $\frac{1}{6}$ gr. may be given, or amyl-nitrite inhalations, or nitroglycerin in frequent $\frac{1}{1000}$ grain doses.

(d) **Faintness.**—Rest, cold to the head, warmth to the feet, ammonia and ether, or alcohol, with fresh air and fanning are indicated.

(e) **Hæmoptysis.**—Hæmoptysis calls for rest and purgation, and in severe cases for leeching or venesection.

(f) **Insomnia.**—Frequently the measures adopted for the relief of the heart bring sleep in their train. When this is not the case we may have to resort to hypnotics. When there is much nervousness and restlessness, leeching is often valuable. Failing this, we may give an injection of morphine tartrate $\frac{1}{10}$ to $\frac{1}{8}$ gr., with strychnin. hydrochlor. $\frac{1}{50}$ gr. In other cases, where nervousness is not marked, we may give at night-time chloralamide 20 gr., ext. glycyrrh. liq. 30 m., sp. vin. rect. 1 dr., aq. ad 1 oz.; or veronal 7 gr. in cachet; or paraldehyde 1–2 dr., syr. aurant. $\frac{1}{2}$ dr., ext. glycyrrh. liq. 20 m., aq. ad 2 oz.

(g) **Intermittency of the pulse.**—This is rarely indicative of organic disease, though it may be among the signs of fatty heart. It is induced by excessive tea or coffee drinking, tobacco-smoking, or by over-eating. It is common in chronic gout, and in nervous debility. Its treatment consists in removing the cause, such as tea, coffee, tobacco, or gastric or other visceral disturbance. If organic mischief is present, the patient's life should be carefully regulated so that no undue strain is thrown on the heart.

(h) **Irregularity of the pulse.**—This may be due to disease, which should be treated as in heart-failure, or it may be due to tobacco-smoking, excessive tea or coffee drinking, to emotion, or to reflex disturbances, such as overloaded bowels or dyspepsia. In this latter group of case we must endeavour to remove the cause, and in addition prescribe a tonic, such as syrup. hypophosphitum co. (1 to 2 dr.), together with rest. In cases of a purely nervous origin a definite assurance that there is no organic

disease, is of great value. The above treatment should be combined with attention to the general health, and, if necessary, with a modified rest-cure.

(i) **Palpitation.**—Flatulence plays a great part in the production of this symptom, and should be rectified. The patient should be re-assured. In urgent cases he should remain at rest and sp. æther. 30 m., sp. ammon. aromat. 30 m., syr. zingiberis 1 dr., aq. anethi ad 1 oz. should be given at once, and again in two hours if necessary. Warm applications or ice to the chest are of service. If they do not give relief, blisters should be applied to the cardiac area. No food should be given for a few hours. Later peptonised milk, beef-essences, and jelly should be given with a few ounces of brandy, in small feeds. A course of ammon. bromid. 10 gr., tr. bellad. 5 m., twice daily, is often of value in nervous subjects. Calomel $\frac{1}{8}$ gr. should be given every hour till the bowels act. When the attack is over, the patient should be careful to avoid strain, exertion, and irregularities of diet, and any toxic cause such as tobacco.

(j) **Precordial distress.**—The patient should rest. The effect of leeching, amyl nitrite, and of a mixture of ether and ammonia, should be tried. If these measures fail, morphia $\frac{1}{8}$ to $\frac{1}{4}$ gr. with liq. strychninæ 2 to 3 m. usually gives relief. Later potassium iodide 10 gr., thrice daily, and nitro-glycerin $\frac{1}{1000}$ gr. every two hours, or oftener at first, should be prescribed, and the bowels regulated. When precordial distress is marked, the presence of fluid in the pleural or pericardial sacs should be looked for, and if necessary paracentesis performed.

(k) **Tachycardia.**—Prolonged absolute rest in bed, with simple diet and avoidance of flatulence and constipation, are required. The most satisfactory drugs are bromides, with tincture of belladonna pushed to the limits of tolerance.

(l) **Vomiting.**—If this symptom sets in, all drugs and food by the mouth should be withheld, especially digitalis and

fluid foods. The stomach should be washed out with water containing 10 gr. sodium bicarbonate to the ounce. Calomel $\frac{1}{8}$ gr. should be given every hour until the bowels act. Effervescing mixtures containing hydrocyanic acid 8 m., bismuth. carbonat. 20 gr. may be tried. After a few hours small quantities of food, especially peptonised milk with sodium citrate 15 gr. to each 10 ounces, koumiss, or strong meat-essences, may be given. In *severe cases* the effect of digitalin $\frac{1}{100}$ gr. and strychnine $\frac{1}{60}$ gr. under the skin every six hours should be tried; but if the vomiting is made worse the digitalis should be omitted for a time.

HEAT-APOPLEXY. See SUNSTROKE.

HEMIPLEGIA.

General treatment. — When the acute symptoms have passed off, the patient's life should be so ordered that mental repose is obtained and that anything likely to heighten the blood-pressure is avoided. The bowels and bladder must receive careful attention. A vegetarian diet, with milk, is the best. Alcohol does harm. If the case has its origin in syphilis, potassium iodide may be given in conjunction with mercurial inunctions. Otherwise medicinal treatment must be symptomatic. Exercise in moderation may be allowed.

Local treatment is not of much avail in (1) old-standing cases in which there is complete degeneration of a large part of the motor tract; (2) in cases associated with tumour, abscess, or softening; (3) in cases with advanced atheroma.

In other cases local treatment may be of great service. Most cases tend to recover partially. In many cases the apparent helplessness of the limb depends on associated conditions, such as articular adhesions and spasmodic contraction of muscles.

Gentle passive movements of the joints affected should be practised several times a day almost from the onset of the disease. All faulty positions should be rectified by

sand-bags and mechanical appliances. Skilled massage of the affected muscles should be employed, at first very gently and later more thoroughly. Galvanism, short of causing contraction of the muscles, may be employed for ten minutes a day, the time being gradually increased. Later the interrupted current is sometimes of service. In addition, the patient should be persuaded to endeavour to educate the affected muscles. This procedure calls for much patience on the part of both patient and physician. The patient must carefully avoid keeping his limbs in a faulty position; for example, when a leg is affected, he must not sit with his knee and toes turned inwards. If ataxy is marked, the patient must educate the hands by such games as draughts or halma or by the use of the typewriter, and the legs by placing the feet in chalk circles drawn upon the floor. (For further details, see FRÄNKEL'S EXERCISES.)

HEPATITIS.

Rest is essential. The diet should consist of milk and farinaceous food. Alcohol should be forbidden. Calomel 5 gr. should be given at the onset, followed by morning doses of Epsom salts. As convalescence sets in, the diet may be carefully enlarged and exercise in moderation prescribed. The patient should wear a cholera-belt.

HERPES.

The vesicles may be painted with collodion to keep them clean, or, if collodion is inconvenient, equal parts of starch and boracic powder may be dusted on. If the vesicles have burst, equal parts of ung. zinci and ung. cocain. may be applied. When the vesicles have burst, scarring often occurs, and care should be taken to see that no scab forms, as the bigger the scab the bigger the scar. If there is much pain with the eruption, morphia $\frac{1}{6}$ gr. may be given and repeated. Arsenic, which itself causes herpes, is the best tonic when the attack has subsided. When persistent neuralgia follows an attack, we may give sod. salicyl. 10 gr., phenazon 10 gr., syr. aurant. flor. 30 m., aq.

ad 1 oz. thrice daily. If this fails, we may try quinine and arsenic, with galvanism.

HICCOUGH.

In slight cases the breath should be held in deep inspiration, or a glass of water may be slowly sipped with both nostrils and ears closed. A sharp galvanic shock is sometimes effective. A draught containing *sp. ætheris* 2 dr., *aq. menth. pip.* ad 1½ oz. is useful. Nitroglycerin $\frac{1}{100}$ gr. tablets may be broken up into four, and a fragment taken every half-hour for three hours. In more severe cases the stomach should be washed out with warm water, and if necessary morphia $\frac{1}{4}$ gr. injected.

HIGH ARTERIAL TENSION. See ARTERIO-SCLEROSIS.

HOARSENESS.

When this is due to definite disease the treatment depends on the cause.

When it is due to overstrain, rest of the voice is imperative. The rules of elocution should be learnt. General attention should be paid to the health. The frequent use of glycerin of tannin 1 dr., camphor-water ad 1 oz., as a gargle, helps to tone up the muscles, and, if the individual has to speak, may help him to tide over a short period before giving his voice the necessary rest.

HODGKIN'S DISEASE. See LYMPHADENOMA.

HYDROCEPHALUS.

If syphilis is suspected, pot. iodide should be given in full doses, together with mercurial inunctions. Otherwise treatment must be symptomatic. Operative measures usually fail, and tapping through the anterior fontanelle or by means of lumbar puncture gives disappointing results.

HYDROTHORAX

Is a passive collection of serous fluid, and is due to cardiac failure, chronic renal disease, or neoplasms within the chest. It is best to remove as much fluid by aspiration as possible, and then by treating the cause, more especially

by rest and stimulation of the heart-muscle, to endeavour to prevent further accumulation. In the case of fluid being due to the presence of an intrathoracic growth, it should be borne in mind that sudden syncope sometimes follows the withdrawal of the fluid; and that when successfully withdrawn re-accumulation is the rule. In spite of this, the fluid should be slowly withdrawn whenever the dyspnoea and distress become marked.

HYSTERIA.

In no case should a diagnosis of hysteria be made until all other possible causes for the condition have been excluded. In all cases care should be taken to gain the confidence of the patient, and to let her understand that the condition is regarded by her attendant as a definite disease, and not as something which she can avoid if she desires. In all cases the general health should be carefully considered, and any cause of reflex disturbance, whether from dyspepsia, disorders of menstruation, ocular defects, or other causes, corrected. Any cause of mental strain should be removed.

In mild cases a regular healthy life is essential. Moral treatment by a healthy-minded individual is the most beneficial form of treatment. It will often be found that the hysterical manifestations are due to the patient's family and surroundings, and that a regular life, with change of scene and associations, effects a cure. Drugs may be employed if necessary, but they are of secondary importance. Zinci valerian. 1 gr., quin. sulph. 1 gr., ext. aloes $\frac{1}{2}$ gr., as a coated pill, thrice daily, is a good routine prescription; or we may give tr. valerian. ammon. $\frac{1}{2}$ –1 dr., tr. aloes $\frac{1}{2}$ –2 dr., sp. chlorof. 15 m., inf. valerian. ad 1 oz. The use of massage and high-frequency currents is beneficial.

In more severe cases the best treatment is the Weir-Mitchell treatment, consisting of absolute rest, isolation, full feeding, and massage, together with electricity if necessary. The details of this treatment will be found

under Neurasthenia. Treatment by the Weir-Mitchell method should be somewhat stricter in hysterical cases than in neurasthenic cases. Thus the diet should be made monotonous, and reading &c. should not be allowed unless improvement sets in. As improvement occurs, solid food should be given as a form of encouragement, and light amusement allowed. If any relapse occur a return to the more rigorous treatment should be made.

HYSTERICAL MANIFESTATIONS.

Convulsions.—Confidence on the part of the doctor is essential. Cold water should be repeatedly dashed in the patient's face. Strong ammonia may be suddenly placed under the nostrils. A sharp electric shock may be given. If these measures fail, the use of the actual cautery may be threatened, and active preparations of heating the iron carried out in the hearing of the patient. General treatment must follow. *Paralysis* yields to general treatment, with the use later on of sharp electric shocks or the go-cart. For *Aphonia*, see under heading of APHONIA. *Contractions* yield to general treatment, which may be reinforced by their forcible reduction, or by the application of blisters in the neighbourhood of the joints.

ICHTHYOSIS.

It should be made clear to the patient that treatment may produce amelioration, but that complete cure cannot be expected.

The chief aim is to supply the deficient fat to the skin. The patient should take a daily warm bath and then smear himself with an ointment composed of lanolin combined with 5 to 10 per cent. of sulphur, ichthyol, or resorcin. The ointment may be used twice daily at first, and then, as the condition improves, at intervals of a day or two. The general health must receive attention. Fat should be well represented in the diet. The clothing next the skin should be flannel or chamois-leather. In some cases thyroid extract 3 to 5 gr. may be given once daily and then more

frequently, provided the patient remains under medical supervision.

IMPETIGO CONTAGIOSA.

General treatment is of importance. Locally the scabs must be completely removed by boracic-acid poulticing if success is to be attained. The poultice is made as follows: 1 dr. of boric acid is mixed with 2 oz. of cold water starch, and water added to the consistency of cream. A pint of hot water is then added slowly, and the mixture stirred till translucent. When cold, the mixture is spread half an inch thick on cloth, covered with muslin, and applied to the part. A poultice should be used about four times a day. An ointment containing not more than 5 gr. ammoniated mercury to 1 oz. of vaseline should be applied after poulticing. Vaccine therapy gives good results in this condition.

IMPOTENCE.

When this condition depends on ignorance or some mechanical obstruction, the patient should receive appropriate advice. When the symptom is due to excess, abstinence for a time, general hygienic measures, exercise in fresh air, a course of tonics, and the use of a moderate continuous current to the spine and groin, are usually the only measures required. This treatment is of more service if the patient's distress is relieved by the assurance that in a short time this symptom of debility will disappear. In exceptional cases we may give ext. damian. 8 gr., phosphor. $\frac{1}{30}$ gr., strychn. $\frac{1}{30}$ gr. as a pill thrice daily, or ext. damian. liq. 80 m., syr. glycerophosph. co. 80 m., syr. hypophosph. co. 80 m., dec. hordei ad 1 oz. in a little water thrice daily. When the cause is atrophy of the testicle or disease of the spinal cord, treatment should be confined to improving the general health.

INCONTINENCE OF URINE.

In adults.—When this symptom is due to stone or enlarged prostate, the cause must be treated. When it is

due to an over-distended bladder, the catheter should be regularly used. When it is in part due to acidity of the urine and an irritable nervous system, general attention to the health, cold sponging, avoidance of meat and alcohol, and the use of liq. potassæ 20 m., tr. hyoscyam. 20 m., ext. glycyrrh. liq. 20 m., aq. ad 1 oz. thrice daily are indicated. It should be remembered that nocturnal incontinence is sometimes a symptom of epilepsy.

In children, the first thing to do is to remove, if possible, the cause. Preputial adhesions, the presence of irritating smegma, phimosis, stone, threadworms, constipation, or other causes of local irritation should receive appropriate treatment. Adenoids should be removed. Anything interfering with the nutrition, such as anæmia or indigestion, tends to keep up this neurosis. Even when these causes have been removed, the habit remains, and requires further attention.

Concentrated acid urine calls for the free use of water, with sodium bicarbonate 20 gr., and pot. citrat. 10 gr. to the pint. When there is a large quantity of urine of low specific gravity, the amount of fluid should be restricted, especially in the latter half of the day.

The second thing is to institute a suitable daily life for the child. A simple country life is best. The nervous system should not be taxed by undue work; excitement should be avoided. Early rising and early retiring to bed are useful. The diet should consist of milk, vegetables, fruits, cereals, fish, and only small amounts of meat. Coffee, tea, alcohol, sweets, and highly seasoned dishes do harm. Fluids may be allowed freely till 4 P.M.; after that very little should be given, and none at all after 6 P.M., or during the night. The child should be taught to hold his urine as long as possible in the day, and should be awakened once, or, if necessary twice in the night to pass water until improvement sets in. A hard mattress is the best, and the bed-

clothing should be light. A cotton-reel may be tied over the spine to prevent the child lying on his back. The third thing is moral treatment. Punishment does harm. The child's pride should be appealed to. Rewards of a few pence or some toy for a dry bed, withheld for a wet one, are often efficacious.

Medicinal treatment by itself is nearly always useless, but combined with the above measures is of great service.

The best drug is atropine, which children bear well; $\frac{1}{1000}$ of a grain for each year of age up to seven is a suitable initial dose. A child of five may have liq. atropin. sulph. 2 m., syr. aur. 1 dr. at bedtime for a few days, and then an additional dose at 4 P.M. It is seldom of service to push the drug farther. When the incontinence ceases, the dose may be gradually decreased, but atropine should be given for at least two months to prevent relapse. When atropine fails, and especially when there is diurnal incontinence, strychnine should be combined with it. A child of five may have liq. atropin. sulph. 2 m., liq. strychnin. 1 m., syr. aurant. 1 dr. twice daily, and later the amount of strychnine may be doubled.

INFANT FEEDING.

Three methods may be employed: (1) *Breast feeding*; (2) *Mixed feeding*—that is, a combination of nursing and artificial feeding; (3) *Artificial feeding*.

1. BREAST FEEDING.—In all cases of breast feeding it is well to accustom the infant from the outset to take one of its feedings, or at least water, from a bottle each day, as this much facilitates any change to artificial feeding which may become necessary later on.

Maternal nursing.—This should be adopted whenever possible. It should *not* be advised—

(1) When the mother suffers from any form of tuberculosis, epilepsy, or organic disease.

(2) When the mother is delicate.

(8) When previous experience has shown that the mother is unable to nurse the child satisfactorily.

Wet nursing.—When the mother's milk fails or when it is inadvisable for her to nurse the child, the question of employing a wet nurse may have to be considered. As a general rule, infants which are fed from the start on properly modified cow's milk do better than if they obtain milk from a wet nurse whose condition, or milk, is not absolutely satisfactory. If a satisfactory wet nurse can be employed such a procedure is the best, but in the majority of cases it is most advantageous to use properly modified milk. In many instances, especially where the mother's milk has been previously found to be unsuitable, and in the case of prematurely born infants, the milk of a good wet nurse may save life.

When breast feeding is employed the greatest attention should be paid to cleanliness. The child should be fed at regular intervals, and must not sleep in the mother's bed.

TABLE FOR BREAST FEEDING

Age	Number of Nursings in 24 hours	Intervals during the day	Number of Nursings between 9 P.M. and 7 A.M.
First day	4	6 hours	1
Second day	6	4 "	1
Third to twenty-eighth day .	10	2 "	2
Fourth to thirteenth week .	8	2½ "	1
Fourth to sixth month . .	7	3 "	1
Sixth to twelfth month . .	6	3 "	0

Weaning should be carried out gradually; a child should be accustomed to mixed feeding from the bottle and breast, the latter being gradually dropped. The time for weaning depends on the mother's and the child's condition; it should always be carried out before the end

of nine months, but it may be required at the sixth month. If weaning has to be carried out suddenly for any cause, a child of six months should at first have the food appropriate for a child of one month and the strength of the food should then be gradually increased.

2. MIXED FEEDING.—Mixed feeding, or a combination of nursing and artificial feeding, may be employed whenever the supply of the mother or nurse is insufficient, and also in cases when it is advisable to relieve the mother from a part of the strain of nursing.

3. ARTIFICIAL FEEDING.—This is necessary when for any reason given above it has been decided not to employ the mother's milk or that of a wet nurse. It is also necessary when the mother's milk, after a trial, proves unsatisfactory. If the child is fretful, sleepless, or suffering from colic, or if there is no gain in weight and the stools are always abnormal during the first two weeks, it should be artificially fed at once, for endeavours to improve a mother's faulty milk are usually unsuccessful.

In artificial feeding it is of the greatest importance to see that the sanitary arrangements are good, the milk fresh, and that everything connected with the feeding apparatus is kept scrupulously clean. The food itself should vary in flavour; in most cases it is enough to use two different flavours in the day and a further one at night. Care should be taken to avoid any risk of chill by improper clothing or undue exposure after bathing, as neglect of this frequently leads to gastric and gastrointestinal catarrh. The best artificial food is cow's milk, suitably modified to meet the requirements of the individual case.

In the following paragraphs general directions are given for feeding healthy infants at different ages. Careful feeding on these lines nearly always meets with success. In certain cases the prescribed proportions of fat, sugar, and proteid have to be altered, and other measures taken. If there is

difficulty in digesting the milk prescribed, the addition of one grain of sodium citrate to each ounce of milk is often of great service. When this fails, a grain of Finkler's Papain may be added to each feeding-bottle. When *vomiting* is persistent the proportion of fat should be lowered; if the vomiting still persists, the sugar may also be decreased and the lime-water doubled. In the early days the proportion of fats and proteids may be gradually increased (provided the fat is not raised to more than 8 per cent.) so as to increase the food residue in the intestine. *In colic and with curds in the stools* the proportion of proteids should be decreased. *Loose green stools* of a sour odour or *large white stools* are due to an excess of fat.

TABLE FOR ARTIFICIAL FEEDING

Age	Quantity in Ounces of each Feed	Number of Feedings in 24 hours	Interval during Day
Premature infants . .	$\frac{1}{4}$ - $\frac{3}{4}$	12-18	1-1 $\frac{1}{2}$ -hours
First to fourth day . .	1-1 $\frac{1}{2}$	8-10	2-4 "
Fifth to seventh day . .	1-2	10	2 "
Second week	2-2 $\frac{1}{2}$	10	2 "
Third week	2-3 $\frac{1}{2}$	10	2 "
Fourth to eighth week .	2 $\frac{1}{2}$ -4	9	2 $\frac{1}{2}$ "
Third month	3-5	8	2 $\frac{1}{2}$ "
Fourth month	3 $\frac{1}{2}$ -5 $\frac{1}{2}$	7	3 "
Fifth month	4-6	7	3 "
Sixth to tenth month .	5-8	6	3 "
Eleventh month	6-9	5	4 "
Twelfth month	7-9	5	4 "
Thirteenth month . . .	7-10	5	4 "

The modification of the cow's milk involves the adoption of a suitable proportion of the fat, sugar, and proteids.

LABORATORY MODIFICATION OF MILK.—

If the milk can be obtained from a laboratory the necessary modifications are easily obtained. In such cases the following table is of service:

PERCENTAGE OF FAT, SUGAR, AND PROTEID FOR HEALTHY INFANTS

Age	Fat	Sugar	Proteids
Premature infants . .	1	4	0.25
First to fourth day . .	1	5	0.30
Fifth to seventh day . .	1.5	5	0.50
Second week . .	2	6	0.60
Third week . .	2.5	6	0.80
Fourth to eighth week . .	3	6	1.00
Third month . .	3	6	1.25
Fourth month . .	3.5	7	1.5
Fifth month . .	3.5	7	1.75
Sixth to tenth month . .	4	7	2.00
Eleventh month . .	4	5	2.5
Twelfth month . .	4	5	3.00
Thirteenth month . .	4	4	3.5

HOME MODIFICATION OF MILK. — Cow's milk can be suitably modified to arrive at the above suitable percentage by means of the following tables :

Diet from birth to the third month.—A mixture containing the fats and proteids in the proportion of three to one may be made by taking 1 oz. of milk-sugar, 1 oz. of lime-water, and varying quantities of a mixture (A) of *equal parts of good milk and cream, and adding water to one pint.*

The varying quantities of the mixture (A) of equal parts of good milk and cream required in the above are shown in the following table :

Age	Amount of Mixture (A) in one pint	Representing per cent. of		
		Fat	Sugar	Proteid
First to fourth day .	2 oz.	1	5.5	0.33
Fifth to seventh day	3 oz.	1.5	5.5	0.5
Second week . .	4 oz.	2	6	0.66
Third week . .	5 oz.	2.5	6	0.83
Fourth to eighth week	6 oz.	3	6	1.00
Third month . .	7 oz.	3.5	6.5	1.16

Diet from the third month onwards.—A mixture containing the fats and proteids in the proportion of two to one may be made by taking 1 oz. of milk-sugar, 1 oz. of lime-water, and varying quantities of a mixture (B) of three parts of good milk and one part of cream, and adding water to one pint.

The varying quantities of the mixture (B) of the three parts milk and one part cream required in the above are shown in the following table :

Age	Amount of Mixture (B) in one pint	Representing per cent. of		
		Fat	Sugar	Proteid
Fourth month . . .	8 oz.	2·8	6·5	1·4
Fifth month . . .	9 oz.	3·15	7	1·5
Sixth to eighth month	10 oz.	3·5	7	1·75
Eighth to tenth month	12 oz.*	4·0	7	2

* In this instance only $\frac{1}{2}$ oz. of milk-sugar should be added to the mixture.

Farinaceous food should not as a rule be given till the child is six months old. It is best to begin with one of the malted foods. Later, well-baked bread or rusks may be given, and finally various puddings. It is important to remember that this class of food in young children is often the cause of indigestion. When this occurs, farinaceous food should be withheld for a time.

Meat and Fish.—At ten months the child may have veal broth ($\frac{1}{2}$ lb. of meat to pint of broth), flavoured with vegetables, and strained ; at fourteen months sole or plaice may be given ; and at eighteen months chicken or mutton, at first pounded and strained through a sieve.

INFANTILE PARALYSIS. See PARALYSIS,
INFANTILE.

INFLUENZA.

However mild the case, the wisest course for the patient, in view of the serious complications and sequelæ common

to influenza, is to go to bed for at least three days, and, if the disease has not disappeared by then, to remain in bed until it has. The room should be well ventilated and kept at about 68° F. Isolation should be carried out as far as possible. The *diet* should be sustaining—milk and eggs, soups, and beef-essences. As soon as possible a solid diet should be given. In the gastro-intestinal form the diet should consist of whey or milk, with sodium citrate 15 gr. to half a pint. *Alcohol* should be given freely if there is any collapse.

Medicinal treatment.—The bowels should receive attention, and calomel 5 gr. may be given at the commencement of treatment. The best routine medicine is quinin. sulph. 2 gr., acid. citric. 14 gr., aq. dest. ad 1 oz., mixed with ammon. carbon. 2 gr., potass. bicarbon. 20 gr., sp. chloroform. 10 m., aq. dest. ad 1 oz., taken during effervescence every four hours. If pain at the commencement is severe, sod. salicylat. 5 gr., phenazon. 5 gr., tr. aurant. 10 m., aq. ad 1 oz. may be given every fifteen minutes for four doses, and then replaced by the quinine mixture.

Complications must be treated on general principles. If vomiting is troublesome, a mustard-leaf to the epigastrium and small sips of dry champagne do good; if necessary, the stomach should be washed out.

In the gastro-intestinal form tr. opii 5–10 m., acid sulph. aromat. 10 m., sp. chlorof. 15 m., aq. ad 1 oz. may be given thrice daily, or more frequently.

Pneumonia requires free stimulation with alcohol and strychnine in addition to the quinine mixture.

Prophylactic.—An open-air life is the best means of avoiding influenza. During an epidemic, quinine sulphat. 1–2 gr., acid. sulph. dil. 5 m., magnes. sulph. 15 gr., aq. destill. ad 1 oz. may be taken every morning.

INSANITY.

Much can be done to prevent insanity when it is threatened, by a removal of any cause of nerve-strain or

any cause of toxæmia. Causes, such as excitement, worry, overwork, insomnia, must be dealt with, and if possible removed. Defects due to the condition of the eyes, ears, nose, teeth, bowels, reproductive and other organs should always be sought for, and if present rectified as far as possible. A regular healthy life under congenial conditions will then do much to restore the mental balance. When insanity, in the form of dementia, mania, or melancholia, has definitely developed, the regular attendant will do well to call in an alienist unless he has had considerable experience of such cases. In the majority of instances it is the best plan to transfer the patient to a special institution.

Method of obtaining admission of a patient into a suitable institution.—In the case of a pauper—*i.e.* one unable to contribute for his maintenance in an institution—the parish doctor and the relieving officer must be notified. In the case of a private patient the usual procedure is to (1) communicate with the superintendent of the institution and obtain the forms for petition and certificates; (2) see that the nearest relative available fills in the petition and statement properly; (3) arrange with another medical man (unassociated with the institution and not a partner nor an assistant) to see the patient separately and to draw up his certificate separately; (4) examine the patient; (5) fill in the medical certificate with extreme care, remembering that later it may come into court, giving facts and details to convince others of the soundness of the opinion expressed, and keeping a copy; (6) have the petition and statement ratified by a County Court Judge, a stipendiary magistrate, or a justice of the peace specially appointed for this purpose; (7) send the documents by the individual who accompanies the patient to the institution within seven days of their completion.

When immediate action is necessary, an *urgency order* may be used. Such an order will obtain for the patient immediate admission to an institution, but it only holds

good for seven days, and by that time must be reinforced by the ordinary petition, medical certificates, and justice's order. It consists of an order signed by an adult friend of the patient and of a medical certificate.

INSOMNIA.

IN ACUTE DISEASE.—Tepid sponging of the whole body just before sleep is of service. Hypnotics should not be given unless absolutely necessary. If pain is present, and in many cases where no pain is present, an injection of morphia tartrate $\frac{1}{4}$ gr., atropine sulphate $\frac{1}{100}$ gr., is the best remedy. If morphia is contra-indicated we must try paraldehyde 1 to 2 dr., or veronal 8 gr., or bromides 30 gr., or we may give chloralamide 20 to 30 gr. in milk, or, if there is no cardiac failure, chloral hydrat. 15 gr., pot. bromid. 15 gr., syr. aur. flor. 30 m., aq. ad 1 oz. In acute insomnia $\frac{1}{150}$ gr. of the hydrobromide of hyoscyne usually acts well.

CHRONIC INSOMNIA.—Many cases depend on disease or the presence of pain. Treatment is of little value here until the cause is removed. The patient should in all cases be most thoroughly examined, and his habits carefully inquired into. In all cases the ultimate cause is irritability of the central nervous system.

The first thing to do is to search diligently for any sign of reflex irritation or disease, and if possible to remedy it. Conditions of high blood-pressure and anæmia may be the determining cause, and should be treated. Impure atmospheric conditions, or a cup of coffee or tea late at night, may be the cause of the condition. Undue exertion and undue mental effort should be restrained. Excess of alcohol, food, tobacco, and sexual indulgence should be avoided. An overloaded stomach or bowel is a common cause of insomnia, and should be rectified. If the patient is awakened by a distended bladder, no fluid should be taken after 6 P.M. In many instances a cessation from work and a change of scene, especially a sea voyage,

in congenial society are of value. Apart from these general measures, the following details should receive attention :

1. The *bed-room* should be well ventilated and cool, the windows being open. The bed should be firm rather than soft ; the bed-clothes light. The head should be slightly raised. If the patient has cold feet, a warm bottle may be allowed. In some cases complete quiet is necessary, in others sleep is unobtainable in the absence of noise—*e.g.* a clock under the pillow.

2. The *diet* should be light and nourishing, meals being at regular intervals. Excess of meat is to be avoided. Complete mental and bodily rest for an hour or half an hour before luncheon and dinner is of great service. The more profound the insomnia, the more food is required ; and in most cases milk should be taken at 11 A.M. and 4 P.M. In some cases a meal just before retiring brings sleep ; in others the meal has to be taken two or three hours before. During the night the patient should, if awake, make a point of taking warm milk and biscuits at intervals, as this sometimes brings sleep, and usually does much to avert a feeling of exhaustion.

3. *Alcohol* should be avoided if possible during the day, but it may be used as a hypnotic at night.

4. Sufficient *exercise* should be taken in the open air.

5. All causes of *worry* should as far as possible be removed. Mental effort, such as work, playing cards or chess, should cease at least an hour before bed-time.

6. *Bed-time* should be a fixed time, preferably at 10.30 to 11.

Measures to induce sleep.—1. A long, smart walk just before bed-time often acts well, if the patient undresses on coming in, without sitting down, and goes straight to bed. In some instances rapid driving or motoring just before bed-time is of value.

2. A tepid or cold spirit sponging of the body just before getting into bed is sometimes of service.

8. Massage for half an hour to an hour, followed by warm milk, after the patient has gone to bed is often invaluable.

4. Electricity, especially static electricity, is useful.

5. *Hypnotics*.—In cases where insomnia occurs under a passing strain, hypnotics may, if necessary, be allowed at once, but in all chronic cases of insomnia a hypnotic should never be prescribed until other measures have failed. If a hypnotic is necessary, the prescription for it should never be given to the patient, or, if a prescription is given, the chemist should retain the form. Whenever hypnotics are given, trial should be made every few days to do without them, and if necessary a placebo, such as sod. sulph. 10 gr., syr. zingiber. 80 m., aq. ad 1 oz., may be given instead. Again, hypnotics tend to lose their power, and therefore every now and again one must be substituted for another.

One of the best hypnotics is 2 oz. of old whisky in the form of warm grog after getting into bed.

The use of other hypnotics may be necessary. If so their effect will be increased by prescribing ammon. bromid. 10 gr. twice during the day for a week or two.

The effect of bromides in 80 to 60 gr. doses in half a tumblerful of water, taken after getting into bed, should be tried first. *Chloral hydrate* in 15 to 80 gr. doses, in addition to the bromides, is a powerful hypnotic. *Syrup of chloral* may be given in doses of $\frac{1}{2}$ to 2 dr. in peppermint-water. A further half-dose may be given in three hours if necessary. It is contra-indicated in disease of the heart and in general paralysis of the insane. A chloral-habit, however, is rapidly formed. *Chloralamide* may be given in 25 gr. doses either in 1 oz. of brandy or with $\frac{1}{2}$ dr. of liq. ext. of liquorice. *Veronal* may be given in 8 gr. doses in milk, and often induces sleep within an hour. This drug when taken for any length of time is apt to do more harm

than good, as in certain instances it upsets the nervous system, leading to depression, loss of power, ataxia, &c. *Sulphonal* is slower in action, and is best given in 5 gr. doses in milk every quarter of an hour, for three or four doses, about two hours before sleep is wanted. This drug is slow, cumulative in its action, and not infrequently gives rise to symptoms of poisoning if taken for any length of time. It should not be given if kidney-disease exists. *Trional* may be given in 10 to 20 gr. doses an hour before sleep is wanted. It acts quicker than sulphonal, but has the same disadvantages. *Paraldehyde* is a safe hypnotic in doses of 1 to 2 dr. after the patient is in bed. It may be given with syrup. aurantii and ext. glycyrrhizæ liquidum. A further dose may be given in three hours if necessary. It imparts an offensive odour to the breath, and rapidly loses its value.

If the above measures fail, excellent results are sometimes obtained by treatment with rest, massage, and isolation in a nursing home, or by a course of treatment at a special health-resort, such as Bad Gastein in Austria.

INTERTRIGO. See ECZEMA.

INTESTINAL OBSTRUCTION.

ACUTE INTESTINAL OBSTRUCTION.—When obstruction is complete, as in *strangulation* or *volvulus*, an abdominal section should be performed as soon as the first symptoms of shock have passed off a little. *Collapse* may be met by warm bottles, and intense pain by hypodermic injections of morphia and hot flannels and belladonna applications to the abdomen. It is important to bear in mind that, though *morphia* may be necessary, and usually is, to relieve the pain and to stop peristalsis, its effect is to mask the symptoms, so that an erroneous idea of improvement is formed and an operation delayed. No food should be given by the mouth. Ice by the mouth increases flatulence. The stomach may be washed out, or now and then a copious hot draught may be taken by the

mouth. In most cases the thirst is relieved by rectal injections. The mouth should be washed out from time to time. In *acute intussusception*, in addition to the above measures, an attempt may be made to reduce the invagination by means of the injection of air or water under an anæsthetic. For inflation an ordinary hand bellows with a catheter attached may be used. Air should be injected very slowly, and prevented from escaping by pressing the buttocks closely together. The best guide as to the amount introduced is the tension of the abdominal walls. A thorough trial of this method should not occupy more than fifteen minutes. For the injection of fluids a saline solution, or gruel, or milk and water may be used, at a temperature of 100° F. The fluid is suspended five feet above the patient's bed, and the apparatus connected with a catheter which is introduced into the rectum. The pelvis should be higher than the thorax, and from time to time the patient may be inverted. In ten to fifteen minutes the fluid is allowed to escape and the abdomen examined.

If such measures fail to effect reduction, immediate laparotomy is called for.

ACUTE OBSTRUCTION DUE TO GALL-STONES OR FOREIGN BODIES.—In certain of these cases relief has followed the free administration of morphia, together with copious and repeated enemata. In most cases, however, laparotomy is called for.

CHRONIC INTESTINAL OBSTRUCTION.—In *stricture* and *stenosis* an operation is called for sooner or later. If an operation is not imperative at once, much can be done by strict attention to dieting. The best diet is a light solid one which leaves little residue. Flatulent diet should be avoided; milk-puddings, vegetables, and soups should be given sparingly. The bowels must be regulated by the use of laxatives such as pulv. glycyrrh. co. and frequent enemata. Light massage of the abdomen is of assistance. Intestinal disinfectants such as β -naphthol

10 gr. in cachet, or sodium sulphocarb. 10 gr., may be given thrice daily.

From faecal accumulation.—Purgatives do harm until the obstruction is removed. The patient should remain in bed. A hypodermic of morphia may be given, together with warm applications to the abdomen. Further doses of morphia should only be given with extreme caution, and not unless it is certain that an operation will not be required, as the use of this drug often gives a false sense of improvement. (If the pain is constantly recurring, an operation is almost certainly required.) Two ounces of castor oil and of olive oil should then be given per rectum. If the rectum is loaded it should be washed out, or, if necessary, the faeces removed mechanically, before the oil enema is given. Six hours after the oil enema is given, a large soap-and-water enema should be administered. If possible this should be done in the knee-left-shoulder position by a fountain syringe—*i.e.* by syphonage from five feet or so. The fluid should be administered slowly. Later, an enema may be given twice daily. After the bowels have been relieved, aperients should be given cautiously. The diet should be spare, preferably solid, and easily digested. Milk should not be given.

INTESTINAL PARASITES. See WORMS (TAPE, ROUND, AND THREAD) and ANKYLOSTOMA.

INTUSSUSCEPTION. See INTESTINAL OBSTRUCTION (ACUTE).

IRITIS.

The patient should be kept at rest in a darkened room. The diet at first should consist of milk and easily digested foods. Alcohol should be avoided. Calomel 5 gr. should be given at once, and a daily action of the bowels secured.

Local treatment.—The eye should be protected from the light by means of a pad. Atropine sulphate (B.P. solution) should be used every two hours until satisfactory dilatation has occurred, and then every four hours. It is

best to combine the atropine with cocaine in the proportion of atropin 8, cocaine 1. It is important that the eye should be frequently bathed with hot boracic lotion, or that a hot pad of cotton-wool be constantly applied to the eye.

If the pain is acute and unrelieved by the above measures, two leeches should be applied to the temple.

Internal treatment. — In *syphilitic cases* liq. hydrarg. perchlor. should be given in 1 dr. doses every six hours until constitutional effects are produced, when the dose may be reduced. Later on, potassium iodide should be given in full doses. In *rheumatic cases* natural sodium salicylate 20 gr. may be given every hour for four doses, and then every six hours. Later potassium iodide should be given. In *gonorrhœal cases* the urethra should receive attention; potassium iodide should be given; and vaccine treatment should be prescribed (*see VACCINE THERAPY*). In *gouty cases* the diet must be regulated and the cause treated (*see GOUT*). In *tuberculous cases*, tuberculin should be given (*see VACCINE THERAPY*). *Sympathetic iritis* calls for enucleation of the eye first affected. *Adhesions* may require operative measures.

ITCH. *See SCABIES.*

JAUNDICE.

In jaundice associated with poisons such as phosphorus, or with cirrhosis of the liver, failure of the heart, obstruction from malignant disease or gallstones, the cause must be treated. Jaundice in infants, not due to malformation, requires no treatment beyond a slight aperient and a good supply of fresh air.

CATARRHAL JAUNDICE.—The patient should remain in bed until the temperature is normal, and until all gastric symptoms have ceased. When he is allowed to go about he should wear a cholera-belt and avoid any risk of chill. At the commencement of the attack he should be starved for twenty-four hours, or at most only given small draughts of Vichy water. Two to three pints of

warm water may be injected during the day into the rectum to allay thirst. The diet for the first week, or so long as gastric symptoms are present, should consist of diluted milk, with sodium citrate 15 gr. to the half-pint. The diet may be gradually increased, the last things to be added being fats and starches. The bowels should be regulated by pulv. glycyrrh. co. 1-2 dr. every night, or by repeated small doses of calomel ($\frac{1}{2}$ gr. every two to three hours). In the morning a Seidlitz powder may be given. If pain is marked, hot fomentations should be employed. If vomiting is persistent, lavage is of service, or an effervescing mixture of hydrocyanic acid and sodium bicarbonate may be given. As the jaundice begins to fade, and the urine has regained its natural colour, and is free from bile, acid nitro-hydrochlor. dil. 10-20 m., inf. calumbæ $\frac{1}{2}$ -1 oz., thrice daily, is often of service. *In cases which do not resolve quickly* a considerable amount of patience is required. The chief indications are strict attention to the diet and bowels, and an abundance of fresh air without risk of chill. In such chronic cases ammon. chlorid. 5-10 gr., ext. taraxaci liq. 1 dr., tr. gent. co. 10 m., syr. aurant. 80 m., inf. sennæ co. ad $\frac{1}{2}$ -1 oz. may be given.

KIDNEY, MOVABLE.

In most cases the best treatment is the use of a properly constructed belt, such as Ernst's. This should be well made, and should be worn for two years, only being removed when the patient is in the recumbent position. If the patient is very thin, appropriate diet should be prescribed, and if necessary complete rest, with Weir-Mitchell treatment. In neurasthenic cases a course of Weir-Mitchell treatment is always advisable.

In the majority of cases operative interference is of little value. It may be necessary in cases associated with hæmaturia, hydronephrosis, or intermittent colic.

LARDACEOUS DISEASE.

The cause must be ascertained if possible. If the cause, such as *suppuration*, can be dealt with in the early

phases of the disease, recovery is common. In later stages fibrosis of the kidneys has usually followed. If discharge is the cause and cannot be stopped, we must give nourishing food, cod-liver oil, and some mixture such as *fe. c. ammon. citr.* 8 gr., *tr. quininæ* 30 m., *syrup. aurantii* 1 dr., *inf. aurantii* ad 1 oz., thrice daily.

If the cause is *sypilis*, potassium iodide must be prescribed. Given for a short time it is useless; it must be given with occasional intermissions for long periods, and in doses of from 10 to 20 gr. thrice daily. Iodide of iron may be usefully given in addition.

The medicinal treatment should be accompanied by a generous diet and careful attention to the general health.

LARYNGISMUS STRIDULUS (Spasm of the Glottis, or Idiopathic Spasmodic Laryngitis).

This disorder is usually associated with tetany, convulsions, or rickets, and is unaccompanied, as a rule, with catarrhal symptoms.

Immediate treatment.—Sponges wrung out of hot water should be applied to the front of the neck, and the chin should be drawn forwards. As soon as possible, the child should be placed in a hot mustard-bath (temperature 100° F., two teaspoonfuls of mustard to a gallon of water) for ten minutes. In severe cases, inhalations of chloroform should be given. Chloral (for a child one month old 1 gr., for a child one year old 5 to 6 gr.) should be given, together with milk, by the rectum. If the breathing stops, artificial respiration must be employed.

After-treatment should be continued for some weeks. The child should be kept in the open air as much as possible, and the diet should be suitable to its age. Cold or tepid sponging does good if it does not frighten the child. All sources of local irritation, such as adenoids, should be rectified. Cod-liver oil should be prescribed. Of drugs, antipyrine (2 gr. every four hours to a child one year old, the dose being gradually reduced as the symptoms improve), or sodium bromide 5 gr., together with chloral

2 gr. (every four hours to a child a year old, the dose being gradually reduced as the symptoms improve), are the most useful. Rickets, which is so often the cause of this symptom, should receive attention (*see* RICKETS).

LARYNGITIS.

ACUTE LARYNGITIS.—The patient should be confined to bed in a well-ventilated room kept at 65° F. A bronchitis-kettle may be used to keep the air moist. *The patient should not be allowed to speak* until all acute symptoms have passed off. Spongiopiline wrung out in hot water should be applied to the neck. Sometimes cold compresses give more relief. If there is much pain, a mustard-leaf should be applied. The diet should be light, and large draughts of barley-water given. An initial dose of calomel or blue pill should be prescribed, and the bowels regulated daily if necessary. *Gentle massage* of the neck night and morning for twenty minutes is of considerable service, and should be practised from the onset. *Vapour*, in the form of 1 dr. of tr. benz. co. in a pint of water at 150° F., should be inhaled for ten minutes four times a day. These inhalations should be stopped when the patient is able to go out, and the following *spray* substituted: Menthol 10 gr., ol. eucalypt. 2 m., liq. paraffin. 1 oz., thrice daily.

Mixtures.—At first liq. ammonii acetatis 1½ dr., vin. antimon. 15 m., sp. æth. nit. 15 m., syr. tolutan. 80 m., mist. amygdal. 2 dr., aq. camphor. ad 1 oz. may be given every four hours until perspiration is free. When this occurs, ammon. chlorid. 10 gr., vin. ipecac. 5 m., syr. tolu. ½ dr., mist. ammoniac. 2 dr., aq. anisi ad 1 oz., thrice daily, may be substituted. As soon as the acute symptoms have passed off, a tonic may be prescribed, such as fe. et ammon. cit. 10 gr., pot. bicarb. 15 gr., pot. iodid. 8 gr., aq. piment. ad 1 oz., twice daily after meals, and a change of air advised, care being taken to avoid chills and over-use of the voice.

CHRONIC LARYNGITIS.—In all cases, rest of the voice is essential for a time. If the cause is

tuberculous, rheumatic, or gouty, appropriate remedies should be prescribed.

If the cause is due to nasal disease, or to improper training, or use, of the voice, these causes must be rectified.

The patient should be in the fresh air as much as possible, taking care to breathe through the mouth. A warm climate is advisable. Treatment at Ems or Mont-Dore is of much service. Tobacco, spices, and alcohol should be forbidden. Tonic treatment should be prescribed if the patient is anæmic or overworked.

LARYNGITIS STRIDULOSA (Spasmodic Catarrhal Laryngitis, or False Croup).

During the attack.—*Medicinal.*—An emetic should be given. For example, a drachm of vin. ipecac. and 15 m. of vin. antim. may be given, and, if necessary, repeated in ten minutes, to a child of two. An enema should be given if the bowels are constipated. Antipyrine 2 gr. (for a child of two) at once, and repeated in five hours, does much to prevent recurrence.

General.—The child should be placed in a tent, a steam-kettle being employed. Hot fomentations over the larynx are often useful. In recurrent cases intubation may be necessary.

After the attack.—The child should be confined to the house for a few days, but then should have plenty of fresh air and a daily cold sponging, especially about the neck and chest. Local causes of the spasms, such as adenoids, should receive attention. If the child's condition is unsatisfactory, tonics should be prescribed.

For a day or two after an attack, 5 m. of vin. ipec. and of vin. antimon. (for a child of twelve) should be given every four hours for a couple of days, and then at longer intervals. In some cases it is necessary to double the doses given after 6 p.m. Antipyrine 2 gr. should be given at bed-time for a few days.

LEUCODERMA.

The white patches are usually beyond treatment. If necessary, counter-irritation may be tried for the purpose of producing pigmentation, but this usually fails. When the pigmentation surrounding the patch is marked and throws the white colour into relief, much may be done to reduce it by repeated applications of mercuric chloride, 2 gr. to 1 oz.

LEUCOCYTHÆMIA.

ACUTE LEUKÆMIA.—The treatment of this disease is entirely symptomatic. Complete rest in bed, fresh air, nourishing food in frequent small feeds, with careful attention to the asepsis of the mouth, are necessary. If hæmorrhage is a marked symptom, 20 gr. doses of calcium lactate may be given thrice daily, or the effect of 10 to 20 c.c. of fresh horse-serum once daily, by the mouth or subcutaneously, may be tried for a few days.

CHRONIC LEUKÆMIA.—Whether this take the form of lymphatic leukæmia or spleno-medullary leukæmia, the line of treatment is the same. Careful attention should be paid to the hygienic surroundings. Fresh air is essential. The diet should be plain and nourishing. Exercise in the subacute stages should never be pushed to the point of fatigue. When fever is present, the patient should be kept in bed. The mouth should be kept aseptic by the use of listerine or hydrogen peroxide 5 volumes per cent. Apart from these measures, we may try the effect of arsenic and of the application of x-rays.

Arsenic.—*Liq. arsenicalis* may be given in 3 m. doses after food thrice daily. The dose may be gradually increased until it reaches 15 m. or more. After a few weeks—*e.g.* six—the arsenic should be omitted for ten days, and then a further course given, the 3 m. doses being given at its commencement. If arsenic sets up disturbance, such as diarrhœa, a few drops of laudanum may be given at the same time. If disturbance still continues, the dose should

be diminished or the drug omitted altogether. When arsenic is not tolerated by the mouth, 1 cubic centimetre of a solution containing .05 centigramme of sodium cacodylate may be injected into the gluteal muscles once daily.

X-rays.—Under the influence of these rays both qualitative and quantitative changes in the white cells are obtained. As a rule one application a week for ten minutes or a quarter of an hour is sufficient, using about five Holzknecht units. The best results are obtained by radiating the splenic region. The lymphatic glands should also be radiated. Some authors also recommend radiation in the neighbourhood of the sternum and of the epiphyses of the long bones. The condition of the blood acts as an index of the necessary duration of treatment. When the blood returns to the normal as regards leucocytes the applications should be stopped. When leucocytosis again becomes marked the use of the *x-rays* should be resumed.

By arsenic and *x-rays* we can do much to lengthen life, but we do not cure the disease.

LEUCOPLAKIA. *See GLOSSITIS.*

LICHEN PLANUS.

Everything should be done to improve the general health.

Internal treatment.—The best drug is mercuric chloride $\frac{1}{3}$ gr. thrice daily. If this fails, arsenic may be given a trial.

External treatment.—Liquor carbonis detergens B.P. may be painted on, but sometimes causes folliculitis. Ung. zinci benz. 8 oz., acid. carbolic. 20 gr., hydrarg. perchlor. 1–5 gr. is often useful.

LICHEN URTICATUS. *See URTICARIA.*

LIVER, CIRRHOSIS OF. *See CIRRHOSIS OF LIVER.*

LIVER, CONGESTION OF. *See HEPATITIS.*

LOCOMOTOR ATAXY.

Much can be done in this disease by perseverance. The patient should live a quiet life, and should be freed as far

as possible from anxiety. Some occupation is of value, but excessive mental effort does harm. Exercise should be taken, but never pushed to the point of fatigue. Falls should be carefully avoided. The diet should be plain and nourishing. Alcohol is best avoided. Smoking may be permitted in strict moderation. Sexual excess does great harm.

The clothing should be warm. A general course of massage and galvanism from time to time does much to keep the muscles in good condition. An important point is the care of the *bladder*. The patient should train himself to empty the bladder every two hours. If this is impossible, catheter-life should be prescribed. A close watch should be kept for any symptoms of cystitis (*vide infra*).

General medicinal treatment. — *Antisymphilitic remedies* should be prescribed in all cases where there is a history of infection within five years or where there are definite manifestations of syphilis. These remedies are of little service in long-standing cases, and do harm when optic atrophy is present. In no case should they be unduly pushed. In early cases the patient may either visit Aix-la-Chapelle from time to time or he may be treated at home. If the latter course is adopted, ung. hydrargyrum $\frac{1}{2}$ dr. may be well rubbed into the inner aspect of the thighs and axillæ for twenty minutes twice daily. The same region should not be rubbed oftener than every second day. The evening inunction should be preceded by a warm bath. This treatment as a rule should last fourteen days, and be repeated at intervals of two months. If there is marked loss of weight, or salivation, or soreness of the gums, the treatment should be stopped.

If the history of syphilis is of long standing, or if tertiary symptoms exist, potassium iodide in 10 gr. doses, increased gradually to 40 gr., should be given thrice daily, together with sp. ammon. arom. 80 m.

After a course of the above remedies the patient should go to the seaside as an after-cure, or take a sea voyage. A course of tonics is now useful, such as iron or quinine.

Other remedies.—A useful routine pill is *fe. lactat.* 1 gr., *ext. cinchonæ* $1\frac{1}{2}$ gr., *ext. nuc. vom.* $\frac{1}{2}$ gr., thrice daily after meals. In some cases a course of strychnine injections is of value; $\frac{1}{100}$ grain once a day should be given, and the dose cautiously increased. In some cases the strychnine increases the tendency to lightning-pains and crises.

Treatment of symptoms.—*Ataxia.*—If necessary the patient must be provided with two walking-sticks with indiarubber caps, to prevent the stick slipping on the ground. The patient should endeavour to re-educate his powers of co-ordination. Very good results are obtained from systematic exercises of the affected muscles, if sufficient care is taken to carry out the various exercises with precision. Walking along a straight line, placing the feet in circles specially drawn with chalk on the floor, touching particular spots with the toes or heels, &c., are examples of the exercises. Such procedures should be practised systematically twice or thrice daily as a rule for half an hour at a time, but should never be allowed to cause fatigue (see FRÄNKEL'S EXERCISES). *Constipation* is best met by an enema, and a simple pill such as *ext. nuc. vom.* $\frac{1}{2}$ gr., *aloin* $\frac{1}{2}$ gr., *ext. bellad.* $\frac{1}{2}$ gr., *pulv. ipecac.* $\frac{1}{2}$ gr. taken after dinner. *Cystitis.*—The bladder should be washed out twice daily with weak boracic solution if this condition arises, and urotropin 7 gr. given twice daily. As the condition improves the washings should be less frequent, and creosote 2 m. in capsule thrice daily may be substituted for the urotropin. *Crises.*—In all forms of crises hot fomentations should be applied to the affected part. As a rule, drugs are useless with the exception of morphia. When it is necessary to use this drug, it should always be administered by the medical man. In *gastric crises* food by the stomach

should be withheld. In *laryngeal crises* inhalation of amyl nitrite may be tried.

Lightning and other pains, such as girdle-pains or pains in the back, may be diminished by antipyrine 5 to 10 gr., phenacetin 10 to 20 gr., pyramidon 5 to 10 gr., or alumin. chloride 3 gr. In severe cases it is necessary as a rule to give morphia injections. In recurrent cases with increased blood-pressure a course of nitroglycerin is of value. *Perforating ulcer* and *joint-affections* require surgical treatment.

LUMBAGO.

ACUTE.—Complete rest in bed is necessary in most cases. The room and clothing should be warm. A linseed and mustard *poultice* should be applied to the loins. The *diet* should consist of milk and free draughts of water.

Medicinal treatment.—Calomel 5 gr. should be given at once and the bowels regulated, if necessary, daily with this drug. Natural sodium salicylate should be pushed until the physiological effect is obtained. Sodii salicylat. natur. 20 gr., sodii bromid. 5 gr., tr. aurant. 30 m., aq. ad 1 oz. may be given every hour for three or four doses, and then every six hours. Salicylates should be left off very gradually. If the case is obviously one of gouty origin vin. colchici 20 m., pot. iod. 5 gr., sp. ammon. co. 15 m., aq. menth. pip. ad 1 oz. may be given thrice daily in water, twenty minutes after meals, instead of the salicylate mixture. As soon as the patient can bear it, and if possible from the outset, deep *massage* of the affected part twice a day is our most efficient remedy. Massage is more effectual when mesotan is used as a lubricant. *Acupuncture* is often useful. A stout needle should be inserted for about an inch in the more tender spots and withdrawn quickly. A dozen or more punctures may be made.

CHRONIC OR RECURRENT.—The clothing should be warm and absorbent. Care should be taken to

avoid cold. Meat and alcohol should be forbidden. The bowels should be kept open daily with sodium sulphate $\frac{1}{4}$ to $\frac{1}{2}$ oz. on rising. In some cases 1 dr. of thialion in hot water may be substituted. Massage, thoroughly given and persisted with, is of the utmost service. Turkish baths and douches are of value. Potassium iodide in 10 gr. doses thrice daily is the most useful drug. Its value is enhanced if two troch. guaiaci are taken thrice daily in addition. If the attacks continue to recur, a course at some spa should be advised, such as Aix-le-Bains, Woodhall Spa, Buxton or Harrogate in the summer, Bath or Sidmouth in the winter.

LUMBAR PUNCTURE.

This procedure is more useful in diagnosis than in treatment. It is of service where there is increased intracranial pressure in so far as it tends to relieve headache, vomiting, and coma for a time. The patient should lie on the left side, with the knees well drawn up and the trunk bent forwards so that the back is slightly curved. The skin should be first sterilised with soap and water, and then with ether and an antiseptic solution, and finally anaesthetised with ethyl-chloride spray. The puncture should be made with a platinum-iridium needle about three inches long. A horizontal line should be drawn across the back at the level of the highest point of the iliac crest. This line crosses the vertebral column at the level of the fourth lumbar spine. The index finger of the operator should be placed on the tip of the fourth lumbar spine and the needle inserted half an inch to the right, and half an inch below that spot. The point of the needle should be directed horizontally forwards and a little inwards till the arachnoidal sac is reached. When this procedure is used for purposes of treatment, fluid may now be allowed to escape drop by drop until about 5 c.c. have escaped. When this procedure is used for diagnosis, as soon as fluid escapes the flow should be stopped by the finger, and a sterilised syringe

should be attached to the needle to collect it, but care should be exercised to withdraw the piston very slowly and without producing suction.

LUNG, GANGRENE OF.

If possible, the case should be treated by surgical measures. Apart from these, we must depend on fresh air, nourishing food, and stimulants. The air of the room should be kept moist by a steam-kettle, and various disinfectants, especially formaldehyde 80 drops to a pint, may be added to the water. The expectoration should be examined to determine the micro-organisms responsible for the condition, and the effect of the appropriate vaccines tried (see VACCINE THERAPY).

The effect of *polyvalent antistreptococcic serum* may be tried, 10 c.c. being injected subcutaneously, or into the rectum, once a day for three or four days at a time. If the temperature rises in consequence of the injections, their use should be omitted for a time.

LUNG, OEDEMA OF.

The indication here is to support the strength and to stimulate the heart. The semi-recumbent posture is best. A light nourishing solid diet should be given, the fluids being limited to one pint in twenty-four hours. Alcohol may be given freely. Liq. strychn. 8 to 5 m., with digitalin $\frac{1}{100}$ gr., may be given hypodermically every six hours, or a 20 per cent. solution of camphorated oil, in 15 m. doses, may be injected every six hours. If there is ascites or pleural effusion, the fluid should be withdrawn. If much oedema of the legs is present, they should be incised at once under aseptic precautions. The use of a steam-kettle is often grateful to the patient.

LUPUS ERYTHEMATOSUS.

In this disease many remedies are well spoken of, and some may be useful in certain cases; but in many instances the remedies aggravate the condition. Great care should be taken to avoid doing harm.

The general nutrition of the body should be improved. Quinine in full doses is sometimes useful. The effect of calcium lactate in 15 gr. doses thrice daily may be tried. In the *erythematous type* of the disease calaminæ 4 dr., zinc. oxid. 4 dr., acid. boric. 1 dr., glycerin. 2 dr., aq. ad 6 oz. should be painted on thrice daily. In addition, multiple scarification may be practised.

Later, collodion may be painted on for the purpose of compressing the swollen parts, or zinc-ichthylol salve mull may be applied at night after bathing the parts with hot water.

In the *scaly type* of the disease we may begin with the calamine lotion. A piece of flannel may be dipped in soap spirit (sapo mollis 4 oz., eau de Cologne 1 oz., sp. vin. rect. 8 oz.), and the part firmly scrubbed once every twenty-four hours. The calamine lotion should be applied when the bleeding has ceased. Later, resorcin (10 per cent. in collodion) may be tried.

LUPUS VULGARIS.

The best treatment for this disease is the use of the Finsen light, or, preferably, *x*-rays, together with small *local* injections of Koch's tuberculin TR. If secondary infection with staphylococci or other micro-organisms is present, an appropriate vaccine should be prepared and given (*see VACCINE THERAPY*). The use of the light-treatment can only be carried out by an expert.

If these remedies are not available, a trial may be made of the following. The parts should be first softened by the use of an emollient ointment, and then well washed with soft soap to remove the scales. Unna's salicylic creosote plaster should be applied night and morning for a few days. After its use, the lupus nodules can often be wiped away. Boracic-acid ointment may then be applied. Further courses of the plaster should be given from time to time. This treatment is always troublesome, and often painful. It requires much perseverance to get the best

results. Scraping, or the use of the cautery, may be necessary in obstinate cases. *Lupus of the mucous membranes* is usually cured by the application of lactic acid. The mucous membrane should be dried with cotton-wool before the application, and well washed with water immediately after. At first acid. lactic. 2 dr., glycerin 2 dr., aq. destill. ad 1 oz. may be painted on daily, and then the amount of water gradually diminished until equal parts of lactic acid and glycerin are applied.

LYMPHADENOMA (Hodgkin's Disease).

Tuberculosis and lymphosarcoma or leucocythæmic conditions should be excluded. If the case is one of Hodgkin's Disease and the glands are small and isolated they should be removed. When the disease is well established surgical measures do harm. The general health should be improved as far as possible, and any cause of irritation of the glands removed. Sea air is beneficial. Of medicines arsenic is the most efficacious; liq. arsenicalis in 8 m. doses should be given thrice daily, and then the dose increased by 1 m. until 15 m. are being taken thrice daily for a few weeks. A week or two without arsenic should follow, and the course should then be repeated. When arsenic fails, phosphorus $\frac{1}{100}$ gr. in pill form may be tried. In other respects the treatment must be purely symptomatic.

MALARIA.

The diagnosis should always be confirmed by an examination of the blood. When fever is present, rest in bed is essential. The diet should be light, abundance of bland fluids being given. Alcohol should not be given as a routine practice. The bowels should be well opened by calomel and Epsom salts. Changes of temperature and anything likely to cause a 'chill' should be avoided. In some cases hot packs, with free stimulation by alcohol and strychnine, should be employed.

The only drug of service is *quinine*. It may be given in the form of the hydrochloride, the sulphate, or the bisulphate.

The ethyl carbonate is tasteless and is suited for children. If quinine is given by the mouth, it should always be given in solution. In grave cases, or when vomiting is marked, *intramuscular* injections, with suitable aseptic precautions, should be employed. The rectal administration may be resorted to in emergencies and grave cases.

The dosage during attacks must vary with the condition. In some cases 5 gr. a day may be enough; in others the intramuscular injection of 60 gr. or more may be necessary to save life. *In ordinary cases* one daily intramuscular injection of 10 gr., or the oral administration of 5 gr. thrice daily, is usually sufficient. *In severe cases*, when coma or convulsions occur 16 gr. should be injected into the muscles, and a dose of 10 gr. given by the rectum every hour till improvement sets in. Children stand quinine well, and in severe cases a child of one year may have a rectal dose of 2½ gr. every hour until improvement sets in, or, if convulsions are present, until these cease.

The dosage during convalescence.—As relapse is frequent, it is of much importance that quinine should not be left off too soon. The frequency of the doses should be gradually diminished, but for a week after convalescence is established 5 gr. should be given thrice daily; for the second week 5 gr. twice daily; for the third week 5 gr. once daily, and then for three months 10 gr. at first thrice a week and then twice a week. These doses should be combined with a course of arsenic.

MALTA FEVER.

The patient should be kept in bed so long as fever exists. Fatigue and exposure should be carefully avoided. The diet should be light and fluid. Solid diet sometimes causes a relapse. The bowels should be regulated, as constipation often causes a relapse. The treatment must be symptomatic, fever being met by sponging, or, if necessary, by cold baths; joint affections by local anodynes and warm applications; and insomnia by hypnotics.

A few cases have responded to vaccine treatment in appropriate doses. Goat's milk should be avoided if recurrence is to be prevented.

MEASLES.

Incubation period, five to fourteen days. A *suspect* should be isolated for two weeks, and may then be allowed out of quarantine if free from catarrh and photophobia. *Disease lasts* fourteen days. *Temperature usually normal* in eight days. *Period of infectivity* lasts from commencement to about three weeks after the fading of the rash, but continues when there is bronchial catarrh, otitis, or nasal discharge.

Measles is usually spread by direct contagion; therefore the patient must be isolated, and children who have been exposed to infection should be quarantined apart from the patient, and not sent away. The patient should be kept in bed to diminish the risk of bronchopneumonia.

The *room* should be as airy as possible, and should contain the minimum of furniture and hangings. There should be an open grate. It is an advantage if there are two communicating rooms, one for the day and one for the night. Failing this, it is an advantage to have two beds in the sick-room. The bed-clothes should be light. Thorough ventilation should be maintained without exposing the patient to draughts, and light-screens should be placed near the bed. The temperature of the room should be 60° F., or, if there is much bronchitis, 65°. A bronchitis-kettle should be kept in use. The room should be darkened according to the patient's wishes. For disinfection measures, see DISINFECTION.

The *diet* should be fluid, and given at regular intervals. Milk diluted with lime-water or aerated water answers best. When fever is marked, water or weak barley-water may be given freely. If thirst is marked, a little ice may be tried.

Stimulants are seldom necessary in uncomplicated cases, but are required when any serious complication is present.

Medicinal measures.—Expectorants and purgatives should be used with care owing to the liability to catarrh so common to the disease. The mouth should be washed out two or three times a day. The eyes and also the nasopharynx should be washed with 5 per cent. boracic-acid solution to lessen the chance of complications. In addition the eyelids should be smeared with vaseline. If conjunctivitis is marked, iced cloths should be applied to the eyes. To diminish the chance of bronchopneumonia, the chest should be rubbed daily with oil and protected with flannel. If cough is a troublesome feature, and bronchitis is not marked, codeia $\frac{1}{80}$ gr. for a child one year old, and $\frac{1}{8}$ gr. for a child six years old, may be given, or Dover's powder $\frac{1}{4}$ gr. to 8 gr. may be taken at night. The itching of the skin may be relieved by inunctions of vaseline. If there is much restlessness or headache, phenacetin 1 gr. to 10 gr., according to age, may be given occasionally. Irritating laryngitis is best met by the steam-kettle and hot fomentations to the neck.

When there is *high fever and marked nervous symptoms* ice should be applied to the head. Cold sponging with water or equal parts of vinegar and water at 80° to 85° F. will allay nervous symptoms, but has not much effect on the temperature unless frequently repeated. A better method is to envelop the body in a sheet wrung out in water at 100° F., and then to rub the body, through the sheet, with ice. *High fever with cyanosis, feeble pulse, and cold extremities* requires a hot mustard-bath, ice to the head, and free stimulation.

Complications.—If there is an epidemic of diphtheria at the time, it is well to give the patient an immunising dose of antitoxin (*see DIPHTHERIA*). Bronchitis, bronchopneumonia, tonsillitis, pseudo- or true diphtheria, diarrhoea, otitis, and conjunctivitis should be treated on the lines indicated under the appropriate headings.

Convalescence.—The management of this is of great importance if tuberculosis, ear-disease, and other troubles

are to be avoided. If there are no complications, the patient may leave his bed, but not his room, after a week. As soon as the rash and fever have subsided, a daily warm bath should be given. After the bath the body should be well oiled to assist desquamation and to prevent the dissemination of fine scales. Care should be taken to see that a sufficient quantity of easily digested food is given.

The clothing must be warm. The patient may be allowed to move about the room when the fever has subsided, and at the end of three weeks to go for drives. No open-air walking exercises should be permitted for at least a month after the first symptoms. Cod-liver oil and iron are useful in convalescence. If the cough persists, the best drug is creosote in 1 m. doses. If slight fever and cough are present, the child should go to a warm, dry, elevated district. For some six months it is necessary that the child's health should be under medical supervision, as sequelæ are common.

MEASLES, GERMAN. See RUBELLA.

MEDITERRANEAN FEVER. See MALTA FEVER.

MEGRIM. See HEADACHE.

MELÆNA.

The treatment of this symptom depends upon the cause. When the cause is not apparent, calcium lactate in 15 to 20 gr. doses may be given every four hours for two days. If this fails, 20 c.c. of fresh horse-serum may be given by the mouth or injected into the rectum each day for three or four days.

MÉNIÈRE'S DISEASE.

Any exciting cause should be removed if possible, such as wax, catarrh, or middle-ear disease. Active manifestations of gout or syphilis should receive appropriate treatment. If high blood-tension is present, measures should be taken to reduce it, such as a milk diet, gentle purgation, and the avoidance of strain.

The effect of *counter-irritation* behind the ear by means of equal parts of lin. and tr. iodi, or better by blistering, should be tried in all cases.

The best drug is dilute hydrobromic acid, and the following mixture should be tried: Acid. hydrobrom. dil. 80 m., quin. sulph. 1 gr., syr. aurant. 80 m., aq. dest. ad 1 oz., thrice daily before meals. If this fails, potassium iodide may be given, or the following mixture tried: Sod. salicyl. natur. 15 gr., sp. ammon. co. 15 m., tr. gelsemii 5 to 10 m., aq. ad 1 oz., thrice daily after meals.

MENINGITIS.

General treatment of all cases of meningitis, acute, infective, epidemic, cerebro-spinal, posterior basic, tuberculous, or syphilitic.

The patient must be kept in bed, with the head slightly raised. Quiet must be maintained, and bright light avoided. The *diet* should consist of milk in small quantities at a time. Animal food and stimulants should not be given in the early stages. If necessary, lavage must be employed.

Lumbar puncture is of service in nearly all forms of meningitis, not only for diagnosis, but in many instances for treatment. The effect of this procedure is not yet known so far as curative effects are concerned, but it undoubtedly relieves excessive intracranial pressure, and so helps to relieve headache, restlessness, and may even lead to a temporary restoration of consciousness when coma is present. It also improves the pulse and respiration. The details of the method are described under the separate heading of Lumbar Puncture. Fluid may be allowed to flow until it merely dribbles away and the normal pressure is restored. In severe cases daily tapplings may be carried out for ten days; in milder cases two or three tapplings may be sufficient. As a rule, the fluid should not be withdrawn by means of a syringe and pressure. If the fluid is thick and purulent, however, it should be withdrawn by means of an aspirator, when about 10 c.c. of a 1 in 100 solution of lysol should be injected through the needle already in place.

The *bowels* should be opened with calomel 5 gr., followed by magnesium sulphate in five or six hours, and then regulated daily if necessary.

*Bedsore*s must be looked for, as they readily form. The *state of the bladder* must be watched, as retention is common, and a catheter used if necessary. *Cold* should be constantly applied to the head by means of an ice-bag or Leiter's coil. *Counter-irritation* to the spine and back of the head is often of value. This may be carried out by mustard-poultices, or if necessary by slight blistering. *Pain* is sometimes relieved by mustard-poultices, but, if it is severe, antipyrine may be tried in repeated small doses—for an infant one year old 1 to 2 gr. every hour or two; for an adult 5 gr. until the effect is produced. If this fails, opium (as much as 1 gr. every few hours for an adult), or morphia, must be given till some effect is produced. To obtain *sleep* when pain is present, morphia injections are necessary. When pain is not a marked feature, or if pain is already under control and sleep has not been obtained, chloral (for a child one year 3 to 5 gr. by the rectum, for an adult 20 gr., these doses being repeated in two or four hours if necessary) should be given. *Convulsions* may require chloral or sodii bromid. 20 gr., phenazon. 5 gr., aq. chlorof. ad 1 oz. *Vomiting* should be met by abstinence from food by the mouth for a few hours. Small quantities of ice and acid. hydrocyani dil. 8 m., sodii bicarb. 10 gr., liq. morph. 5 m., aq. ad 1 oz. Alcohol and digitalis may be given if *the pulse is weak, rapid, and irregular*, but strychnine should be withheld. *Hyperpyrexia* requires cold sponging or the use of cold baths.

As the acute symptoms subside the return to solid food or stimulants must be very gradual. Complete freedom from exertion and excitement must be maintained. A routine mixture of sodii iodid. 5 gr., sodii bromid. 10 gr., inf. aurantii ad 1 oz., may be given for a week or two.

Special indications in particular forms of meningitis.—In *purulent meningitis* the cause should be sought for and dealt with on surgical lines.

In *epidemic cerebrospinal meningitis and posterior basic meningitis* the use of a lumbar puncture is especially valuable. As the nasal mucous membrane is the usual channel of infection, all nasal discharges should be collected and burnt and the nasal membrane thoroughly douched from time to time. Quarantine period, one week.

In *tuberculous meningitis* treatment practically always fails; but in addition to general treatment ung. hydrarg. may be freely rubbed into the abdomen, and repeated at twelve-hourly intervals if there is no salivation. In a few cases tuberculin has been of service.

In *syphilitic meningitis* iodide of potassium should be given in 10 to 20 gr. doses thrice daily. Fifteen gr. or more a day may be given to a child of six months. Ung. hydrarg. should be freely rubbed into the abdomen or inner parts of the thighs and axillæ each day. (See SYPHILIS.)

MENTAL DISEASE. See INSANITY.

MESENTERIC-GLAND DISEASE (Tabes Mesenterica).

The patient should be kept under open-air conditions, and must be warmly clothed. The most important point is the feeding, no more food than is necessary being given. Beef-juice, mutton-broth freed from fat, chicken-broth, eggs, and light fish may be given. Sterilised milk, suet, and fats should be given in small quantities, and the stools watched to see that they are assimilated. If the stools are unsatisfactory, fat must be withheld; it may be necessary for a time to give only predigested food. Cod-liver oil may be given by the mouth, but only in such quantities that it is assimilated. In severe cases cod-liver oil may be given by abdominal inunction. The child should have a warm bath, and then be thoroughly dried. A tablespoonful of warm

oil should then be rubbed into the abdominal wall and groins. A flannel roller should be applied fairly tightly over the abdomen and covered with mackintosh sheeting. The abdomen should be rubbed night and morning for the first three days, and then once a day. It is an advantage for the flannel to be saturated with oil, and therefore it should not be changed more than once a week. If the odour of the cod-liver oil is too objectionable, olive oil may be used instead, but is less effective. If there is much *abdominal pain*, 2 to 8 gr. Dover's powder may be given to a child of five thrice daily if necessary.

Treatment with tuberculin may be tried if other measures fail, but in this form of tuberculosis the initial dose should not be greater than $\frac{1}{10000}$ to $\frac{1}{20000}$ mgm. (See VACCINE THERAPY.)

MIGRAINE. See HEADACHE.

MITRAL DISEASE. See HEART, DISEASES OF, p. 147.

MOLLITIES OSSIUM.

Beyond general attention to the health and absolute rest in bed, no remedial treatment is of value. If the patient is pregnant, labour in the great majority of cases should be induced; later, it is advised by many that the ovaries should be removed, as a further pregnancy greatly hastens the course of the disease.

MOLLUSCUM CONTAGIOSUM.

The best treatment, in that it is the most certain, is to snip off each growth with scissors. If there is any inflammation, mild antiseptics should be applied until healing takes place. If the growths are very small, they may be squeezed, and a drop of pure carbolic acid applied to the cavity. Exposure to *x*-rays is often of value.

MOLLUSCUM FIBROSUM.

Removal of the growths is the only treatment. In many cases it is only feasible to remove the growths which cause much inconvenience. There is always the possibility

of hæmorrhage as the result of the operation, and this must be guarded against.

MORPHIA-HABIT.

The treatment of any drug-habit is conducted on similar lines to those detailed below for the morphia-habit.

The habit can only be broken successfully in the vast majority of instances (1) by treatment under constant and complete supervision, a gradual withdrawal of the drug, most careful attention to the bodily nutrition, and a prolonged after-cure ; or (2) by the hyoscine method.

The patient should be given a warm bath and then kept in bed. His clothes and property should be carefully searched for the drug, and minute precautions taken that he does not receive supplies from attendants or injudicious friends. He should have special attendants, preferably of his own sex. He should never be left by himself for the first few weeks, as otherwise he may do himself bodily harm. Moral persuasion within its proper limits is invaluable. *Diet* is of great importance. Strong beef-essences, concentrated soups, peptonised milk, and similar food should be given freely and at short intervals. As soon as possible, solid food should be given. If the digestion gives much trouble, 1 to 2 gr. of papain may be taken after a meal. *Alcohol* should be avoided in most instances, as there is a great probability of the patient becoming addicted to alcohol when he has lost his craving for morphia. When great distress and nervous exhaustion accompany the withdrawal of morphia, alcohol may be given in liberal doses for a few days at a time ; these must be diminished at the earliest moment, and then cut off completely.

The withdrawal of the drug.—*Gradual withdrawal.*—The drug is usually taken hypodermically, and what follows relates chiefly to this method. If opium has been taken by the mouth, similar treatment is called for, and

good results are usually obtained with less inconvenience to the patient. The dose to which the patient is accustomed may be given for the first day, the injections being made at the usual hours. Each succeeding day a smaller dose should be administered—e.g. if the patient has been habituated to 10 or 12 gr. of morphia in the day, on the second day give 10 gr., on the third day 9 gr., on the fourth day 8 gr. At the same time, it is important that the number of injections should also gradually be decreased. When the dose has become 8 gr., for each $\frac{1}{2}$ gr. subsequently dropped $\frac{1}{2}$ gr. of heroin may be given. Thus, in one day, morphia 2 gr. + heroin $\frac{2}{3}$ gr. is given; then morphia 1 gr. + heroin $\frac{4}{3}$ gr.; then morphia $\frac{1}{2}$ gr. + heroin $\frac{5}{3}$ gr.; then morphia $\frac{1}{4}$ gr. + heroin $\frac{11}{4}$ gr.; and then heroin $\frac{1}{2}$ gr. by itself. The amount of heroin is then diminished daily by one-half.

For the *sleeplessness* which is so common during the withdrawal of the morphia, the best plan is to give paraldehyde (1 to 2 dr. with ext. glycyrrh. liq.) and sulphonal (30 gr.) on alternate nights. These doses should be gradually reduced. If there is much restlessness, it may become necessary to prescribe bromides, giving 90 gr. a day, and if necessary increasing the dose by 10 gr. a day till 90 gr. or more is reached.

Diarrhœa, sickness, or nausea must be met by appropriate remedies; if they are very marked, the injections of morphia may have to be temporarily increased.

As the case improves, massage and electricity should be given, and gradually the patient may be allowed to move about the room, and then to go for drives, and finally to take outdoor exercise.

When the cure appears complete, which may be the case in one to three months, the patient should go for an *after-cure*. This is important, for the tendency to relapse is great. Every now and again during the next six to twelve months, for twenty-four to thirty-six hours, the desire for morphia is often well-nigh irrepressible. A pro-

longed sea-voyage with a friend is the best thing; failing this, residence in some institution under medical supervision should be advised.

The hyoscine method.—The patient must be treated in a special institution, and kept in bed at first. For the first week, reliable nurses should be in constant attendance. One-hundredth of a grain of hyoscine hydrobromide is given hypodermically at the outset, and $\frac{1}{200}$ gr. every hour until a mild delirium is produced (usually in twelve hours). When this occurs, just enough hyoscine is given to maintain the delirium—usually $\frac{1}{200}$ gr. every three hours, for twenty-four hours, or in long-standing cases for forty-eight hours. The hyoscine treatment is now stopped, and as a rule the patient has lost his craving.

In the early stage of this treatment, one or more doses of morphia $\frac{1}{4}$ gr. may be necessary. When hyoscine is prescribed, water should be given freely to relieve the thirst.

When the hyoscine has been discontinued, pilocarpine should be given to favour its elimination. One-eighth grain should be given every hour as soon as the hyoscine injections are stopped; after a few doses, the interval between the pilocarpine injections should be increased.

The treatment of symptoms, and the after-cure, should be carried out on the lines described above.

MOVABLE KIDNEY. See KIDNEY, MOVABLE.

MUMPS (Parotitis).

Incubation fifteen to twenty-five days. A suspect should be isolated for three weeks. *Period of infectivity*, from first symptom to twenty-fifth day. *Duration of symptoms*, a fortnight. If constitutional symptoms are present, the patient must be kept in bed. If there are none, he should be confined to the house. The fact that inflammation of the testicle, mammæ, ovaries, and it is said of the cerebral meninges, occasionally occurs should be borne in mind, and movement limited as far as possible during the first week. If orchitis sets in, the testes should be well

supported and hot fomentations applied. If there is any difficulty in swallowing, fluid nourishment should be given until the swelling subsides. The gland should be protected by cotton-wool or spongiopiline. If suppuration, which is rare, occurs the gland must be incised. If pain is severe, poultices should be applied and the gland painted with lin. belladonnæ. The mouth should be well rinsed and swabbed out daily with 1 in 40 carbolic or listerine. Internal remedies are seldom required, but if much fever is present antipyrine in 5 to 10 gr. doses may be given in cachet or mixture thrice daily. Sleep may be obtained by Dover's powder if necessary.

MYALGIA. See RHEUMATISM.

MYELITIS. See PARAPLEGIA.

MYOCARDIAL FAILURE. See HEART, DISEASES OF (pp. 149-152).

MYXCEDEMA.

The patient should be warmly clothed and protected from chill, and, if the disease is marked, confined to bed for a time. Sufficient food should be taken. Stimulants are unnecessary. *Thyroid gland* in its various preparations is a specific. The dose must be found for each patient. If the dose chosen causes the pulse-rate to increase beyond 90, or if the loss of weight is very marked, the amount given must be diminished.

In severe cases $\frac{1}{2}$ gr. of dried thyroid extract (or 8 m. of liquor thyroidei) should be given each night, and gradually increased to 2 gr. in two weeks, at the end of which the patient may usually be allowed to get up and to take exercise cautiously. In less severe cases complete rest is not essential; in such, 1 gr. of dried extract (or 6 m. of liquor thyroidei) may be given at night at first, and then the dose gradually increased until satisfactory effects are obtained. When the symptoms of the disease have disappeared, the amount of thyroid gland may be diminished, but it is necessary to give the gland for the remainder of the

patient's life. The amount necessary after health has been regained depends on the individual, but as a rule lies between 1 gr. and 4 gr.

NAUHEIM TREATMENT. *See* SCHOTT-NAUHEIM TREATMENT.

NEPHRITIS. *See* BRIGHT'S DISEASE.

NETTLE-RASH. *See* URTICARIA.

NEURALGIA. *See also* NEURITIS.

Neuralgia is a symptom, and the first essential after relieving the immediate pain is to *endeavour to discover and to remove the cause*. It must be remembered that neuralgia will often persist for a time after the removal of the cause, and hence any remedies used must be patiently employed if their full action is to be obtained. Amongst the causes of neuralgia may be mentioned: (1) anæmia or any disordered condition of the blood; (2) disorders of nutrition; (3) reflex sources of irritation, such as carious teeth, impacted wisdom-tooth, affections of the eye, ear, or nose; intestinal, rectal, anal, pelvic, or ovarian irritation; (4) the effects of cold or damp; (5) fibrositis; (6) gout and high arterial tension; (7) chronic constipation; (8) rheumatism; (9) malaria; (10) syphilis; (11) poisons such as lead, or the poisons of acute diseases which lead to definite neuritis; (12) pressure on the nerve. If the cause cannot be discovered, we have to treat the case on general well-defined lines, and, so far as the immediate relief of the pain is concerned, must depend upon the empiric action of a host of remedies. Every remedy in the list will at times cure as if by magic, but in most cases failure results, to be replaced by success with another drug. At present we have no means in such cases for determining beforehand the result of any remedy, but that is no reason for failing to give each drug used time to exert its action. It must be our rule that, when we have decided that a particular drug should be used, its full physiological effect should be produced before it is discarded for another.

Again, it is wise to give repeated small doses at short intervals rather than larger doses at greater intervals in the treatment of neuralgia, as indeed in many other affections.

Routine treatment of neuralgia.—General treatment.—The part affected should be protected from cold and from sudden changes of temperature (*e.g.* when going from a warm room to a cold passage). The part affected should be kept at rest until the major part of the pain has gone; then gentle massage or exercise may be tried, and increased if the effect is favourable. The body should be warmly clad. Open-air conditions should be, as far as possible, maintained. If the part affected allows, exercise in the open air should be systematically taken. The diet should be carefully regulated, comparatively large quantities of highly nutritious food being given. Indigestible articles and excess of meat must be avoided. In some cases the neuralgia will only yield to Weir-Mitchell treatment (*see* NEURASTHENIA). Between the attacks every effort must be made to improve the general health by proper feeding, exercise, change of air if necessary, and tonics such as *fe. arsenat.* $\frac{1}{8}$ gr., *fe. redact.* 4 gr., *quin. sulph.* $1\frac{1}{2}$ gr., thrice daily.

Treatment of the paroxysm.—In most cases, if the pain is severe, the best plan is to inject $\frac{1}{8}$ to $\frac{1}{4}$ gr. morphia as near as possible to the site of the pain at once. This should not be repeated, unless absolutely necessary, in chronic cases, for fear of the morphia-habit being established. For the same reason the medical man should always administer the morphia himself. If the pain is not so severe, and in severe cases between the paroxysms, other drugs may be given. If the cause is known, the drugs mentioned under succeeding paragraphs may be given according to the condition. If the cause is not discovered, the drugs mentioned under empiric remedies must be tried.

Local treatment.—Warm applications as a rule increase the pain. The effect of *counter-irritants* should always be tried. Menthol and mesotan are occasionally of service. Equal parts of lin. aconiti and lin. chloroform. lightly painted over the surface are of value in many cases, especially in facial neuralgia, but must not be applied too freely. When these fail, the effect of leeches should be tried. In chronic cases, blistering—*i.e.* placing a small circle of blistering plaster over the most painful spots—may be of service. Where nothing has availed, the actual cautery may be tried. The continuous current (from 10 to 20 cells) for five or ten minutes is rarely useful. The effect of static electricity is highly spoken of.

Acupuncture and osmic acid.—10 m. of a freshly prepared 1 per cent. solution of osmic acid are taken up in a hypodermic syringe, which is then filled with sterilised water. The needle is deeply inserted into the course of the nerve in several places.

Treatment of neuralgias of known origin.—

Anæmia.—During the attack, quin. hydrochlor. 5 gr., acid. hydrobrom. dil. 20 m., tr. gelsemii 10 m., aq. chloroform. $\frac{1}{2}$ oz. may be given every twenty minutes till pain ceases, not more than four doses being taken. Between the attacks, fe. quin. cit. 10 gr., liq. arsenicalis 8 m., tr. nuc. vomic. 8 m., aq. aur. flor. ad $\frac{1}{2}$ oz. may be given thrice daily after food, the bowels being well opened each day.

Gout.—During the attack, sodii salicyl. nat. 5 gr., phenazon. 5 gr., inf. aurant. ad 1 oz. may be given every quarter of an hour till pain ceases, not more than four doses being taken. Between the attacks the bowels should be well opened and potassium iodide given in 10 gr. doses thrice daily.

Chronic constipation.—For the attacks of pain the phenazonum and salicylate mixture mentioned above; in addition, the ordinary treatment of constipation.

Ovarian neuralgia often yields to small blisters and to phenazon. 5 gr., tr. belladonnæ 5 m., aq. chloroform. ad $\frac{1}{2}$ oz. every quarter of an hour till pain is relieved, not more than four doses being taken.

Facial or cranial neuralgia is best treated with a pill containing gelsemin. hydrochlorid. $\frac{3}{16}$ gr., butyl chloral hydrat. 8 gr., mucil. ac. q.s., two pills at once, followed by one every hour until six have been taken.

Malaria.—Quinine 10 gr. every six hours.

Rheumatism.—Sodium salicyl. nat. 10 gr., sodii iodidi 8 gr., inf. aurant. ad $\frac{1}{2}$ oz., a dose hourly for three hours, then every six hours.

Syphilis.—Pot. iodidi 10 to 15 gr. every six hours.

Trigeminal neuralgia, or tic douloureux, may be treated symptomatically for a time with drugs, but it can only be satisfactorily treated by surgical methods, the most efficient being the removal of the Gasserian ganglion. The mortality of this operation in capable hands is about 5 per cent.

Vaguely defined pains often yield to ammon. chlorid. 20 gr., tr. cimicifug. 20 m., ext. glycyrrh. liq. $\frac{1}{2}$ dr., aq. chloroform. ad 1 oz. every six hours.

The empiric use of various drugs.—*Acetanilid*, or *antifebrin*, is often useful, but must be given properly and with care. At first a dose of 2 gr. should be given, and repeated in four hours in cachet form. If this does no good, the dose may be gradually and very cautiously increased to 10 gr. or until the physiological effect is shown—viz. slight cyanosis—when the dose should be gradually diminished. *Ammonium chloride*, 20 gr. in solution every two hours for three doses, then every four hours for twenty-four hours. *Belladonna* and *codeine* are useful in some visceral cases, ext. bellad. $\frac{1}{2}$ gr., codein. $\frac{1}{2}$ gr., being combined in a pill, and given every six or eight hours. *Bromides* are seldom of service unless combined with other drugs. *Cannabis indica* is sometimes useful in pelvic neuralgias ;

$\frac{1}{2}$ to $\frac{2}{3}$ of the extract given in pill form every four hours. *Gelsemium* is especially useful in facial neuralgia. Twelve minims of the tincture may be given every two hours till there is pain in the eyeballs, some giddiness, and a little ptosis. If the patient has had previous experience of the drug, larger doses may be given—even as much as 1 dr. every hour for six doses, but the effect of each dose must be watched. *Phenacetin*, or *phenazonum*, in 5 gr. doses every fifteen minutes for four doses. *Quinine* in 10 gr. doses every six hours, more especially in supra-orbital neuralgia.

When the above measures fail, and the patient's life is burdensome, **surgical measures** may be given a trial—*e.g.* stretching, excision, ligature, or avulsion.

NEURASTHENIA.

This is a condition of nerve-exhaustion, and is usually brought on by more or less prolonged malnutrition of the nervous system, combined with constant and excessive calls on the supply of nervous energy. Treatment consists in placing the patient under such conditions that by rest and proper feeding the nervous tissue can be properly nourished, and cut off from undue stimulation. Undoubtedly the treatment which carries this out best, and with the most permanent result, is the Weir-Mitchell treatment, of which details are given below. The earlier the disease is recognised and treated in this way, the better is the result. Treatment by sea voyages, or prolonged rest in the country, often does good for a time, but in many cases so treated relapse occurs sooner or later. There is, however, a class of neurasthenics in which the disorder has been largely brought on by over-feeding, abuse of alcohol, and want of exercise. In such cases, a course of treatment at Carlsbad, Homburg, Marienbad, or some hydropathic institution, is the best form of treatment, provided that the nerve-fatigue receives attention as well as the disordered metabolism. Again, many patients are so situated that it is impossible for them

to leave their work or their homes. In such cases we must be careful to avoid saying that the best treatment is the Weir-Mitchell treatment, as the fact that such treatment is impossible for the patient has a depressing effect, and minimises the usefulness of other procedures. Such patients can be greatly helped by judicious treatment at home, but necessarily the treatment has to be more prolonged, and the results are not so satisfactory. In such cases the patient must do what he can to increase his rest, and to diminish the calls on his nervous energy. Until improvement sets in, exercise should be as limited as possible; later on, a little golf or more vigorous exercise should be prescribed. The patient should, if possible, cease all work at 5 P.M., and should cut down any work which is not necessary for his livelihood. The patient should also make a practice of lying down for a rest (preferably of an hour's duration) before the midday and evening meals, and for half an hour after each meal. If this is impossible, a rest of an hour or two in the afternoon should be secured. During such periods of rest, nothing involving mental effort should be permitted. The patient should retire to bed before 10 P.M. During the day he should obtain as much fresh air as possible. Sufficient food is a necessity, and it is essential that an effort be made to negotiate a satisfactory meal (unworried and undisturbed) three times a day at regular hours. Drug-treatment must follow the lines indicated under Weir-Mitchell Treatment.

Weir-Mitchell treatment.—One essential is complete mental rest for a time. This can only be obtained by isolation. Experience has shown that only in exceptional cases can the necessary isolation be obtained in the patient's own home. In the great majority of cases the patient should be sent to an efficient *nursing-home*. The home should be quiet; and better results are obtained, as a rule, in a home which is not chiefly designed for the reception of surgical cases. The nurses should be carefully

chosen, and must have had experience of the treatment. At first the patient should be kept in bed. In the majority of cases he may be allowed up to use the commode, but he should not leave the room for the first few weeks. For the first day or two he should not be allowed any mental or bodily effort at all. The decision as to when the patient may be allowed to get up must be decided according to the progress made, but in the majority of cases a patient may be allowed up in the latter part of the fourth week. At first he may lie on a sofa, later he may be allowed to sit up for meals. Then he may be permitted to walk about his room, and later to go for quiet drives, provided he rests on returning, and finally to walk in the open air. No *visitors* should be allowed until considerable improvement has occurred. Later on, a tentative trial of a short visit of a judicious friend may be permitted for a few minutes, and, if no harm results, the visits may be gradually increased in frequency and duration. No *letters* should be received or written by the patient until improvement has set in, and in no case should business matters be considered whilst the patient is in the home. At the same time the patient should be made to understand that if any family or business matter occurs which demands his immediate attention he will be informed of it, and that the home is not a prison, but can be left at any time. *Reading* should not be allowed at first, but the nurse may read suitable extracts from the daily papers or from light novels. Later, the patient may be permitted to look at illustrated papers, and then at selected parts of the daily newspaper, care being taken to avoid exciting matters—*e.g.* business men should not have the City portions of the paper. Later on, more latitude in reading may be permitted, provided no mental excitement is caused. Some patients become restless if they are not allowed to do anything. In such cases, some of the above restrictions may be remitted, but much discretion is required.

Suggestion plays a great part in the treatment, and it is essential that both the medical attendant and the nurse should be cheerful in front of the patient, constantly assuring him of his improvement and eventual recovery.

Diet.—Our aim is to improve the weight and general condition without causing gastric disturbance. The patient should be given nothing but milk containing sodium citrate 1 gr. to 1 oz. for forty-eight hours, 5 oz. of milk being given every two hours, from 8 A.M. to 10 P.M. At the end of forty-eight hours three light meals should be given, in addition to the milk. Then the diet should be cautiously increased until the patient is taking three good meals, and four to five pints of milk. Half a pint of the milk should be given with each meal, the remainder at two-hourly intervals as before. Made-up dishes and indigestible food should be avoided. Butcher's meat once a day is sufficient; it should be given with the midday meal. The evening meal should be lighter than the midday meal. Fresh fruit may be taken in the morning, and stewed fruit at night.

Alcohol, tea, and coffee should be avoided at first. Later, weak freshly infused China tea, or *café au lait* may be allowed in the morning.

Medicinal treatment.—As a general rule, if there is much irritability and insomnia, it is wisest to place the patient from the outset of treatment on a bromide mixture. A mixture containing ammon. bromid. 5 gr., sodium bromid. 15 gr., liquor arsenic. 2 m., inf. aurantii ad 1 oz. may be given with half a tumblerful of water twice or thrice a day twenty minutes after food. The amount of bromide given must depend on the condition; as soon as a definite effect is produced, the amount may be cautiously reduced from day to day. When the bromide mixture is omitted, a pill (coated) containing zinc. valerian. 1 gr., quin. sulph. 1 gr., mucil. acac. q.s. may be given twice or thrice a day for some weeks with advantage.

The bowels should be regulated, if necessary, by a morning saline aperient. At the outset calomel 8 gr. should be given, and a further dose should be prescribed once a week. If the appetite is poor, sodii bicarb. 15 gr., acid. hydrocyan. dil. 8 m., inf. gent. co. ad 1 oz. may be given fifteen minutes before meals twice a day.

Insomnia.—A trial of the effect of treatment, combined with a course of bromides, should be made for a few days. If in addition a hypnotic is required, the best is trional 10 to 20 gr. in cachet an hour before sleep is required. A cachet may be given each night, but the dose should be gradually diminished without the patient's knowledge.

Massage.—This should be given by a trained individual. On the first day twenty minutes' massage is sufficient. The duration of its application should be increased, so that a patient has an hour's massage a day at the end of three days. At the end of the first week, two hours a day should be prescribed. The best hours are 10 to 11, and 4 to 5 P.M. If insomnia is a troublesome symptom, massage should be given in the evening instead of the afternoon. A draught of milk should be given after the massage, and then the patient should lie gently resting in a darkened room for one hour. In the second week passive movements may be allowed in improving cases, and in the third week resistance movements. As the patient commences to take exercise, the massage should be restricted to the morning, and the amount gradually diminished.

Electrical treatment is seldom of much value in this disorder.

After-cure.—When the condition of the patient has improved sufficiently, he should be advised to go to a health resort, preferably to one which is new to him, for a few weeks, in suitable company.

NEURITIS.

NEURITIS OF A SINGLE NERVE.—The cause should be removed. Any pressure on the nerve should be

treated at once. If the cause is syphilis, iodide and mercury should be given freely; if rheumatism, salicylates and, later, potassium iodide are the best drugs. Absolute rest of the affected part is essential. In cases caused by cold, local sweating by means of a hot-air bath is useful in many instances. Local application of cold may be tried in traumatic cases. Morphia or cocaine injections are called for when pain is severe, but should always be given by the medical man himself. When the acute stage is past, judicious massage and galvanism of the affected muscles should be prescribed.

MULTIPLE NEURITIS.—Here again the cause must be removed if possible—*e.g.* alcohol, lead. The patient must have absolute rest, if necessary on a water-bed. The temperature of the room should be 60° F., the room being freely ventilated. The limbs should be kept warm with wool; and if the pain is severe, warm fomentations may be tried. The diet should be nourishing and easily digested, milk being given in large quantities. It is of great importance that the patient should take sufficient nourishment. If necessary the appetite should be aided by sodii bicarb. 15 gr., tr. cardamom. co. 80 m., inf. gent. co. ad $\frac{1}{2}$ oz. The bowels should be carefully regulated, preferably by calomel. If *stimulants* are required, alcohol should not be given, but strychnine and digitalis prescribed.

Medicinal treatment.—The best routine treatment is sod. salicyl. 10 gr., phenazon. 8 gr., every six hours. In a few days iodide of potassium may be given instead. If there is much *pain*, the limbs should be protected from the weight of the bed-clothes by cradles. As a rule, morphia $\frac{1}{6}$ to $\frac{1}{3}$ gr. is necessary, but the effect of antipyrine 5 to 10 gr. should first be tried. *Sleeplessness* is best treated by paraldehyde 1 to 2 dr., repeated in four hours if necessary, or by large doses of bromides. The effect of *massage* and passive movements should be tried, as soon as gentle pressure on the affected muscles does not give rise to acute

pain—that is usually in two or three weeks—and continued if the pain is not much increased. At the same time *galvanism* may be used, and daily injections of liq. strychn. 8 m. prescribed. Cod-liver oil in the later stages is very useful, combined with iron or arsenic. If there is some loss of co-ordination after convalescence is established, the patient should re-educate his muscles by walking along a straight line, or placing his feet in circles chalked on the floor, or by other exercises (*see FRÄNKEL'S EXERCISES*).

COMPLICATIONS.—If, as in some cases of diphtheritic paralysis, the *throat-muscles* are affected, food should always be given by a stomach-tube. In cases of *threatened heart-paralysis* the patient should not even turn in bed. Morphia should be given in sufficient doses to keep the patient under its influence whilst threatening symptoms are present. In such cases strychnine may be given at the same time. In *respiratory paralysis* strychnine must be given in full doses, and pushed till there is definite twitching of muscles. At the same time faradism of the respiratory muscles, and especially of the diaphragm, should be used in the attacks.

In diphtheritic cases good results occasionally follow the use of large doses of antitoxin.

NEUROMATA.

Treatment on the lines detailed under neuralgia may afford temporary relief, but permanent benefit is only obtained by removal of the tumour.

NIGHTMARE. *See* NIGHT-TERRORS.

NIGHT-TERRORS.

In young children.—All mental and nervous strain should be removed. For example, overwork, vivid ghost stories, and punishments should be forbidden. The general health must be improved, and anything abnormal, such as dyspepsia or constipation, dealt with. Similarly, if adenoids, worms, errors of refraction, &c., are present they must

receive attention. The child should have a nightlight in his room, and someone should sleep in the same room or in an adjoining one with the door open. When attacks are frequent, bromides may be given an hour before bed-time, 5 gr. to a child of two, 10 gr. to a child of seven. The attacks tend to subside about the tenth year.

In adults.—Nightmare is due to the presence of undigested food or to mental excitement. The general health must be improved. The bed-room should be well ventilated. The last meal should not be later than seven. Hard work before retiring should be forbidden. Constipation must be avoided. The patient should sleep on a hard bed with few clothes. His feet should be kept warm by thick socks. He should avoid sleeping on his back: a reel of cotton may be tied over the vertebral column. If necessary, bromides may be given at night for a few nights. Someone should sleep near at hand, and when an attack comes on administer an inhalation of amyl nitrite, and sponge the patient's face with cold water.

NOCTURNAL INCONTINENCE. See INCONTINENCE OF URINE.

OBESITY.

Before any attempt is made to reduce excessive weight, a thorough examination of the patient should be made to discover whether the condition is associated with cardiac dilatation or other organic condition. If such conditions, especially renal inadequacy, are present, great care should be exercised in attempting to reduce the weight.

Many of the systems for reducing weight are likely to cause considerable injury to health, and even to result in death if pushed too far. This is especially the case with 'specific' drugs, such as vinegar and alkalies. Of such drugs, the only one of real value is *thyroid extract*, but the use of this remedy is fraught with serious danger unless its administration is carefully and continuously watched. As a rule, if this drug is given, 8 gr. twice daily is sufficient,

but if this leads to a quickening of the pulse to more than 80, the dose should be reduced. If thyroid extract is given, an excess of proteid food should be taken at the same time.

Exercise, especially slow walking up-hill, should be prescribed in gradually increasing amounts. Where this is impossible, owing to the degree of fatness, massage should be substituted at first.

Diet.—In some cases it is enough to give general directions with regard to the food (*see* below), but in most instances a definite diet should be laid down, such as Von Noorden's. In all cases the patient should weigh out the food he eats.

The diet should not be too varied, and spices, pickles, &c., should be forbidden, as they stimulate the appetite. Hot water should be sipped an hour and a half before or after food, three pints being taken in twenty-four hours.

Forbidden.—Sugar, milk, fat, farinaceous food, especially puddings, cooked or dried fruits; salmon, eels, mackerel, herring, and whitebait; pork, veal, duck, and goose; alcohol, malt liquors, and sweetened aerated drinks; thickened soups; much fluid at meals.

Allowed.—Lean meat or fish (save those mentioned above); poultry or game (*see* above); 4 oz. of well-toasted bread or captain's biscuits, with a few pure protene biscuits; fresh vegetables; fresh fruit in strict moderation; saccharin.

When *alcohol* is necessary it should be prescribed in the form of good matured whiskey; hock or light claret may be permitted.

In slight cases, in which the obesity is not of long standing, or only amounts to a tendency, the desired result can usually be obtained (1) by limiting the intake of farinaceous food (not more than 4 oz. of bread being allowed) and fat, cutting off alcohol and sugar. (2) By taking sufficient time over the meals, and by slowly and deliberately masticating the food. (3) By taking an in-

creased quantity of exercise, especially slow up-hill walking exercise. One form of exercise which is useful in reducing the size of the abdomen is the increased action of the abdominal muscles brought about by the patient lying on his back twice a day for five to ten minutes and practising deep abdominal respiration, the thorax being kept as still as possible. (4) Adequate relief of the bowels, preferably by Carlsbad or Epsom salts.

In more severe cases the best results are obtained by treatment at Carlsbad, Homburg, or Marienbad, as the patient gives a more whole-hearted attention to the necessary measures. Very good results can be obtained at home if the patient will give his intelligent co-operation. In all cases it is necessary to proceed slowly, as rapid reduction of weight often leads to serious impairment of health. It is not necessary to aim at a loss of more than 8 lb. a week. During treatment the patient should be under medical supervision. When the weight has been reduced by one to two stone, the patient should not be dieted so strictly. We may then revert to a more ordinary diet, cutting off alcohol and sugar, and limiting the fat and farinaceous intake.

Where it is necessary to prescribe a definite system, either of the two following may be prescribed :

1. *Von Noorden's system*.—8 A.M., 8 oz. cold lean meat, 1 oz. bread, cup of tea or coffee with small quantity of milk and saccharin if wanted; 10 A.M., 1 egg; 12 noon, cup of strong clear soup with fat strained; 1 P.M., small quantity of clear soup, 5 oz. lean meat or fish, 8 oz. potatoes, green vegetables, $8\frac{1}{2}$ oz. fresh fruits; 3 P.M., cup of black coffee; 4 P.M., 7 oz. fresh fruit; 6 P.M., glass of skimmed milk; 8 P.M., $4\frac{1}{2}$ oz. cold lean meat, 1 oz. wholemeal bread, 2 or 3 spoonfuls of fruit cooked without sugar.

2. *The Salisbury system*.—This may be carried out as follows: For the first fourteen days for breakfast and

luncheon, 1 lb. of lean rump-steak. For dinner, 1 lb. grilled ood and 1 lb. lean rump-steak. At intervals during twenty-four hours, 1 gallon of hot water. Last thing at night, $\frac{1}{2}$ oz. of whiskey in water, with a slice of lemon.

For the next twenty-one days mutton-chops without fat, whiting, sole, green vegetables, and rusks are allowed, and the amount of water is reduced to 4 pints.

For next thirty-one days the water is gradually reduced to 2 pints, and tea, captain's biscuit, crust of stale loaf, fish, fowl, game, joints of any kind, and a little light wine and seltzer are allowed.

ŒDEMA OF LUNG. See LUNG, ŒDEMA OF.

OSTEO-ARTHRITIS. See RHEUMATOID ARTHRITIS.

OXALURIA. See also GRAVEL.

Open-air exercise is a necessity, together with good ventilation of rooms. Soups, excess of meat, rhubarb, and sugar should be avoided. The principal meal should for a time be at midday. The mind should not be over-excited. A pint of hot water should be sipped whilst dressing in the morning, and a pint of hot water, with a few grains of sod. bicarb., taken last thing at night. Acid. nitro-hydrochlor. dil. 20 m., inf. calumb. 1 oz., may be given thrice daily.

PALPITATION. See HEART, DISEASES OF, p. 155.

PARALYSIS. See also HEMIPLEGIA.

This section is divided into—1. General Treatment in Cases of Acute Onset. 2. Alcoholic Paralysis. 3. Diphtheritic Paralysis. 4. Facial Paralysis. 5. General Paralysis of the Insane. 6. Hysterical Paralysis. 7. Infantile Paralysis. 8. Syphilitic Paralysis. 9. Paralysis due to Tuberculous Disease. 10. Paralysis due to the Presence of a Tumour.

The treatment of the *cause* is essential, if the cause is known, and will be found in the succeeding paragraphs.

1. GENERAL TREATMENT IN CASES OF ACUTE ONSET (Acute Myelitis).—The patient should

be kept at absolute rest on a *water-bed*. He should lie on his side, and occasionally on his back. *Bedsore*s should be carefully guarded against by good nursing. The *diet* should at first consist of milk and farinaceous food. An ice-bag should be applied continuously to the spine. If *pain* is severe, a dozen leeches should be applied to the different parts of the spine. If the pain is not relieved by this measure, morphia must be given. The *bowels* should be regulated by enemata. The condition of the *bladder* should not be overlooked, and the dribbling of an over-distended bladder should not be mistaken for incontinence. If the bladder is distended, the urine should be drawn off by catheter. If the urine becomes ammoniacal, boracic acid 10 gr. and urotropin 7 gr. should be given twice daily, and if necessary the bladder washed out. If incontinence is present, strict cleanliness should be maintained. *Sleeplessness* caused by the flexor spasms is best treated by trional 10 to 20 gr., together with extension applied to the affected limb at night-time. Potassium iodide 5 to 10 gr. should be given thrice daily for a week or two.

When the acute symptoms have passed off, the patient should be encouraged to use his limbs, provided he does not unduly fatigue himself. Massage and galvanism should now be prescribed (and also when the paraplegia is of the flaccid variety). When no spasticity exists, strychnine should be given hypodermically, commencing with $\frac{1}{80}$ gr.; phosphorus $\frac{1}{100}$ gr., fe. glycero-phosphat. 2 gr., should be given in pill form twice a day.

2. ALCOHOLIC PARALYSIS. See under NEURITIS.

3. DIPHTHERITIC PARALYSIS. See under NEURITIS.

4. FACIAL PARALYSIS. See under FACIAL PARALYSIS.

5. GENERAL PARALYSIS OF THE INSANE.
—The patient should be sent to a special institution

sooner or later. In all cases antisymphilitic remedies should have a full trial. Otherwise, treatment is entirely symptomatic.

6. HYSTERICAL PARALYSIS.—Great care should be taken to see that the diagnosis is correct. The patient should then be firmly assured that no organic disease is present. If no improvement takes place, the case must then be treated with isolation, massage, and galvanism in a nursing-home (*see* Weir-Mitchell Treatment, under NEURASTHENIA).

The use of the go-cart to encourage walking is of service after a few weeks' treatment.

7. INFANTILE PARALYSIS (Poliomyelitis, Acute Anterior).—**Acute stage.**—The child should be kept at rest in bed, in whatever position is found to be most comfortable. If the pain is severe, a water-bed should be employed, and the limbs carefully supported. The diet should be light, and, if fever is present, fluid for the first few days. If swallowing is difficult, a nasal tube should be employed. The bowels should be regulated at the outset by calomel and subsequently by enemata. Drugs are useless, but, if fever is present, pot. citr. 5 gr., sp. æth. nitrosi 10 m., aq. chloroform. ad 1 dr., may be given every four or six hours. *Pain* may have to be met by morphia, but is often relieved by dry cupping of the spine or the application of leeches to this region.

Subacute stage.—The patient should be carefully guarded against chill. It is essential that the affected limbs should be kept warm. Warm baths and douches are of service. When fever has gone, and there is no pain on movement—that is usually by the end of the second or third week—gentle *massage*, and then *passive and resisted movements*, should be prescribed. *Galvanism* of the affected muscles may now be tried for a few minutes daily, and the time of application gradually increased to fifteen minutes. Later the *faradic current* may also be em-

ployed. Electric treatment may be continued in suitable cases for two years, and strychnine should be given by the mouth as soon as electricity is employed. The initial dose should be $\frac{1}{100}$ gr., but this should gradually be increased.

Contractures and deformities should receive *early surgical treatment*.

8. SYPHILITIC PARALYSIS.—As soon as the relation of the paralysis to a syphilitic origin is established or appears probable, antisyphilitic treatment should be commenced and vigorously carried out. Mercury should be thoroughly rubbed into the skin, and potassium iodide given, at first in 10 gr. doses thrice daily, and then rapidly increased to 80 gr. doses (*see SYPHILIS*).

9. PARALYSIS DUE TO TUBERCULOUS DISEASE OF THE SPINAL COLUMN.—If there is no evidence of abscess-formation which calls for operation, the patient should be kept at absolute rest in bed. Extension should be applied, with counter-extension to the head if the disease is in the cervical region. The effect of tuberculin (TR) should be tried (*see VACCINE THERAPY*).

10. PARALYSIS DEPENDING ON THE PRESENCE OF A TUMOUR.—If a tumour is diagnosed, potassium iodide should be given in full doses for a week. If no improvement occurs, the question of an operation must be carefully considered.

PARALYSIS AGITANS.

The general health should be improved as far as possible. The patient's habits should be regular. In some cases a prolonged course of arsenic (commencing with liq. arsenic. 8 m., and increasing the dose to 10 m.) is of service.

Passive movements and skilled massage may do good. The most efficient remedy is *hyoscine*, as it often has a considerable effect on the movements. It is essential that

a properly standardised preparation of hyoscine should be used. Hyoscin. hydrobrom. $\frac{1}{180}$ gr., in chloroform-water, may be given after breakfast, and again before bed-time. The drug may be given for a week and then omitted for a week. Further courses may be given at intervals; or $\frac{1}{180}$ gr. of the drug may be injected once a week. If dryness of the mouth or other unpleasant symptoms arise, the use of the drug should be omitted for a time.

PARASITES, INTESTINAL. See ROUND-WORM, TAPE-WORM, ANKYLOSTOMA.

PEDICULI.

CAPITIS.—In mild cases the hair need not be cut; in more severe cases it should be closely cropped. If many crusts are present, they should be softened by a linseed-meal poultice and removed. The pediculi are best dealt with by paraffin oil. The head is freely smeared with this, and then covered with rags soaked in the oil. An oiled-silk bathing-cap should be worn over the rags. A second application should be made in twelve hours, and twelve hours later the scalp should be thoroughly washed with soap and water. Afterwards the hair should be well soaked in vinegar, and the nits then removed by a fine comb. It may be necessary to repeat the whole treatment in a week. If eczema or glands are troublesome, they must be dealt with on ordinary lines.

PEDICULI CORPORIS.—The chief thing is to bake the clothes thoroughly. Ung. hydrargyri ammon. may be lightly smeared over portions of the body for two or three days.

PEDICULI PUBIS.—The best treatment is a preliminary spraying with ether, followed by the gentle application of ung. hydrarg. ammon. The use of the ointment may be repeated every second day, but care should be taken not to apply it too vigorously, otherwise a dermatitis and enlargement of the glands may result. In severe cases the hair may be clipped.

PEMPHIGUS.

VULGARIS.—In the *acute* stage, rest in bed and a milk diet should be prescribed. The bullæ should be opened, and simple dressings applied. When the temperature has become normal, arsenic should be given. In the *chronic* form, rest from work and worry and a change of air should be prescribed. The bullæ should be opened and simple dressings applied. A plentiful supply of nutritious food is necessary. Arsenic should be given a thorough trial. Liq. arsenicalis may be given in 3 m. doses thrice daily, and the dose gradually increased to 10 m. Later, cod-liver oil and iron may be prescribed in addition. If a fair trial of this fails, strychnine and quinine may be tried.

FOLIACEUS.—The patient should remain continuously in a warm bath. Medicines and applications are useless. Most cases are fatal.

VEGETANS is always fatal. The treatment is symptomatic. An early resort should be made to opium.

PERFORATING ULCER OF THE FOOT.

The cause should receive attention, and efforts made to improve the general health. The ulcer should be kept clean with antiseptic dressings, and the thickened epidermis should be cut away. The free application of horse-serum to the ulcer may have a beneficial effect; applications of ung. resinæ are also sometimes of service. If diseased bone is present, or if treatment of the ulcer fail, the ulcer should be cut out and any diseased bone removed. If this fails, amputation should be considered.

PERICARDITIS.

PERICARDITIS WITHOUT EFFUSION.—The treatment of this condition is practically the same as that already detailed under Acute Endocarditis. Absolute rest in bed is imperative. The diet should be fluid and nutritious, and care must be taken to avoid flatulence. The treatment of the cause should be continued. Thus,

in rheumatism, salicylates and calomel should be freely given, unless there is marked cardiac failure, and, later, iodides (*see* RHEUMATISM, ACUTE). In kidney-disease, treatment must be on the lines of the original disease (*see* BRIGHT'S DISEASE, ACUTE AND CHRONIC). *Pain*, if present, is best met by the continuous local application of an ice-bag, the ice being well pounded and changed every two hours. *Insomnia* is best met by the careful use of opium. In *cardiac excitement* digitalis should be given. At the first sign of *cardiac failure*, digitalis, strychnine, oxygen, and alcohol should be given freely. If *vomiting* commences, the food should be given in small quantities, and the milk peptonised. If vomiting continues, food given by the mouth should be withheld for twenty-four hours. Water by the mouth in small quantities may be allowed, and 8 pints of warm saline solution (1 dr. to 1 pint) should be injected into the rectum in twenty-four hours. An effervescing mixture containing hydrocyanic acid may be of service, but the use of all other drugs, and especially digitalis, by the mouth, should be avoided. Strychnine should be given freely under the skin.

Convalescence.—The treatment is the same as that detailed under Acute Endocarditis (*see* HEART, DISEASES or, p. 142). If resolution is delayed, small flying blisters should be applied to the cardiac area.

PERICARDITIS WITH EFFUSION.—When fluid is present, and absorption does not take place under the above treatment, the effect of small blisters should be tried. If this fails, or if symptoms are urgent, the pericardium must be tapped. An aspirator-needle should be inserted upwards and slightly inwards in the fifth interspace close to the sternal edge on the left side. If *fluid* is found, the aspirator should be attached to the needle and the fluid allowed to run out slowly. If *pus* is present, the pericardium must be drained, preferably by Allingham's method.

PERIHEPATITIS.

Alcohol should be avoided. Opium, in small doses, should be given internally if pain is a marked feature, and leeches or flying blisters employed.

PERITONITIS.

ACUTE.—An immediate operation is required in nearly all cases.

TUBERCULOUS.—If fever is present, the patient should be kept at *rest* in bed. A free supply of fresh air is essential, and treatment should, as far as possible, be carried out under open-air conditions. The *diet* should be abundant, and, if possible, solid. An excess of fatty food, such as butter, cream, sterilised milk, and bacon-fat, should be given.

Medicinal measures.—Half a drachm of ung. hydrarg. should be rubbed into the abdomen at night, and a flannel binder kept firmly applied. At first, sodium salicylate 5 to 15 gr. may be given thrice daily. As improvement sets in, iron and arsenic should be prescribed, together with cod-liver oil. *Diarrhœa* is best met by opium. In children, $\frac{1}{2}$ m. of tr. opii may be given thrice daily for each year of the child's age. *Pain* is best met by Dover's powder. In a child, $\frac{1}{2}$ gr. may be given for each year thrice daily. If drowsiness is induced the doses of tinct. opii or of Dover's powder must be reduced.

Tuberculin treatment (*see* VACCINE THERAPY).—In many cases in which effusion is present, tuberculin (TR) acts as a specific. In the cases in which fluid is small in quantity, or absent, the results are not so satisfactory. Each case has to be treated on its merits; but in the dry form, the dose of tuberculin should be smaller (usually the initial dose for an adult should not be larger than $\frac{1}{50000}$ mgm.), and when a particular dose is doing good, no increase in the dose should be made for some time. As a general rule (in an adult), $\frac{1}{50000}$ to $\frac{1}{25000}$ mgm. Koch's tuberculin (TR) may be given as the initial dose when effusion is present. In young children the initial dose should be smaller: $\frac{1}{50000}$ to

$\frac{1}{80000}$ mgm. The doses may be given with 2 oz. of milk by the mouth three hours after food. In some cases, in which the effusion is of some standing, better results are obtained if the tuberculin is given with 2 oz. of milk by the rectum. The dose may be given, as a rule, at intervals of forty-eight hours. In some cases the interval should be longer. If the temperature is unaffected by the tuberculin—that is, if fever is not diminished nor increased—slightly larger doses should be given. In some cases, instead of giving, *e.g.*, $\frac{1}{10000}$ mgm. in a single dose, better results are obtained by giving $\frac{1}{80000}$ mgm. on two successive days. If the temperature is increased by the tuberculin, or if the symptoms become more marked, smaller doses should be given. When absorption of the fluid has commenced and the temperature has improved, tuberculin should be continued. If the previous doses have been $\frac{1}{80000}$ mgm., we may now give $\frac{1}{15000}$, $\frac{1}{10000}$, $\frac{1}{7500}$, $\frac{1}{5000}$ mgm., &c., with forty-eight hours' interval between each dose (*see* VACCINE THERAPY). If fever or other symptoms, such as pain, are caused by any particular dose, the next dose should be a smaller one, and a further increase of dose should not be made for some time. For the purpose of preventing relapse and establishing immunity, two doses of tuberculin should be given each week for two or more months after all symptoms have subsided, the dose being gradually increased.

Operative measures are seldom called for if tuberculin is properly administered, unless symptoms of obstruction arise.

PERNICIOUS ANÆMIA. *See* ANÆMIA, PERNICIOUS.

PERSPIRATION, EXCESSIVE.

For perspiration in tuberculosis, *see* TUBERCULOSIS, PULMONARY.

LOCAL SWEATING of the feet or armpits is best met by strict cleanliness, frequent change of clothes, and free dusting with boracic-acid powder.

EXCESSIVE SWEATING sometimes follows debilitating diseases, such as influenza, and sometimes accompanies chronic alcoholism, obesity, Graves' disease, &c. The clothing is important, and should consist of a 'cellular' mixture of silk and wool. Night and morning the skin should be sponged with a mixture of very hot water and vinegar, and then smart friction should be applied. Open-air conditions should be maintained as far as possible. Alcohol should be avoided, and the amount of fluid in the diet limited. The vasomotor centres should be toned up by a course of arsenic and nux vomica. A course of massage is often of value. Three grains of sulphonal twice daily are sometimes of service.

PERTUSSIS (Whooping-cough).

Incubation fourteen days. *Period of infectivity* from commencement to six weeks, or until the spasmodic stage has ceased for a week. *Usual duration of disease* from four to eight weeks.

General treatment.—The child should be isolated, and two rooms placed at its disposal. Other children should be sent away. The rooms should be fumigated daily. Material likely to be damaged by *sulphur* should be removed. In the morning the child should be taken from the sleeping-room, which should then be fumigated with sulphur $6\frac{1}{2}$ dr. per cubic metre of air space, for five hours, with the doors and windows closely shut. The room should then be well ventilated, and at night the child brought back to it in clean linen garments. The day room should be fumigated in the same way at night. All vessels, utensils, and clothing should be disinfected after use. The rooms should be freely ventilated when the child is in them, and kept at 60° F., or, if there is much bronchitis, at 65° F. A cresolene lamp should be burnt. A free supply of *fresh air* is a most important thing in the treatment throughout the attack. In warm weather all children should be kept in the open air as much as possible, but in colder weather

patients with bronchitis, and infants and delicate children, should be kept indoors. Young children should have a fluid diet; others the diet which has previously agreed with them. Indigestible food greatly aggravates the disease. After the paroxysms have become thoroughly established, milk and beef-tea form the best diet. Food should be withheld if a paroxysm is threatening, but should always be given immediately after a paroxysm which has been attended with vomiting. In severe cases *alcohol* is necessary.

Clothing should be warm. During a paroxysm every constriction about the chest and neck should be removed. The *bowels* must receive careful attention.

Local treatment.—Insufflations and local applications are not, as a rule, of service, but the local application of a 2-per-cent. resorcin solution to the throat is well spoken of. Inhalations of cresolene or creosote are more efficient. In very severe paroxysms chloroform may be given, or it may be necessary to use intubation.

Medicinal treatment.—Much harm is done by promiscuous drugging. As most drugs are given to affect the paroxysms, their continuous use should be delayed till the symptoms are sufficiently severe, as their action is thus more efficient.

When a paroxysm is expected, sod. bicarb. 8 gr., syr. simplex 20 m., aq. ad 1 dr. may do much to relieve its intensity. If bronchitis is marked, we may give vin. ipecac. 2 m., ammon. bromid. 2 gr., tr. camph. co. 2 m., aq. chlorof. ad 2 dr. thrice daily. The best routine treatment, however, in the great majority of cases is *antipyrine* (which may, if necessary, be combined with ammonium bromide or heroin). For a child six months old the dose is 1 gr. every three hours, and then every two hours; for a child two years old, 2 gr. every four hours, and then every two hours. Should pneumonia set in the antipyrine should be discontinued.

In a mild case, when the number of paroxysms is not more than ten a day, and there is no vomiting, a single dose of antipyrine at night, after the first five days, is sufficient.

In older children, perhaps the best results are obtained by the use of *quinine* in full doses, 12 to 15 gr. being given daily to a child of five.

If the paroxysms are not yielding to the efficient trial of the above remedies, the best drug is *belladonna*. It must not be given if the temperature is high, or if serious complications are present, and to be of value must be pushed. A child of three may receive 10 m. of tincture of belladonna every four hours, and then every two hours if necessary, or $\frac{1}{800}$ gr. of atropine may be given in the same way, until the pupil dilates or delirium sets in, when its use should be stopped for a time and smaller doses substituted.

Bromoform is recommended by some authorities (1 to 3 m. for two years, 2 to 4 m. for five years, five times a day). It is best given in capsules or on sugar. Full doses should be used with caution; and if given in emulsion, care must be taken to shake the bottle, as cases of poisoning have occurred owing to lack of this precaution.

Convalescence.—A change of air and a course of tonics should be prescribed as soon as convalescence is established. The child should be carefully guarded against anything likely to set up an attack of bronchitis. Children who have had a severe attack are liable, if not carefully treated for some time, to suffer from tuberculosis at a later date.

PHARYNGITIS.

ACUTE SIMPLE.—Calomel (5 gr.) should be given at night, and magnesium sulphate (1 dr.) in the morning. Quin. sulph. 1 gr. should be given thrice daily after food. In the early stage a gargle of borax 24 gr., glycerin 24 m., tr. myrrh 24 m., water 1 oz. may be used frequently, and a spray of chloride of zinc 15 gr., water 1 oz., several times a day. In twenty-four hours more sedative treat-

ment is required, such as a gargle of pot. chlorat. 12 gr., water 1 oz., and a spray, menthol 10 gr., liquid paraffin 1 oz. If there is much tenacious mucus, trochisci ammon. chlorid. (2 gr.) are useful. If much pain is present, a boracic-acid compress should be used, and a bronchitis-kettle, containing compound tincture of benzoin 1 dr. to the pint of water. If the uvula is unduly swollen it must be scarified, after being painted with cocaine 10 per cent. When the acuteness of the attack has passed off, alum 8 gr., water 1 oz. may be used freely as a gargle.

ACUTE SEPTIC.—The patient must be kept in bed. Strong soups, milk, and eggs must be given freely. If swallowing becomes difficult, food may be withheld for twenty-four hours, and injections of water given by the rectum. Alcohol in full doses is usually called for. Calomel 5 gr. should be given at the onset. A daily morning dose of Epsom salts should be given. If the pulse becomes feeble, strychnine $\frac{1}{100}$ gr. and digitalin $\frac{1}{100}$ gr. should be injected as required. A bacteriological examination should be made, and if streptococci or other micro-organisms are found a vaccine should be made and given (*see VACCINE THERAPY*). Daily doses of 20 c.c. polyvalent antistreptococcic serum may be of service.

Local treatment.—A cold compress should be applied to the neck for a few hours; later on, a warm compress is of more value.

The pharynx should be painted at once with perchloride of mercury 1 part, glycerin 25 parts, water 74 parts. The pharynx and uvula should be freely swabbed out with hydrogen peroxide 20 vols. per cent. If deglutition is painful, a solution of 5 per cent. cocaine, painted on shortly before nourishment is taken, is of service.

CHRONIC.—In all cases the condition of the nose should be ascertained, and if disease is present this should be rectified.

The cause should, if possible, be ascertained. Excessive use of tobacco, or alcohol, is a frequent cause. Improper use of the voice in speakers is also a common cause. Exposure to fine dust is another. In some cases the cause is found in a gouty or rheumatic diathesis.

Apart from treatment directed against the cause, the throat may be painted night and morning with iodum 6 gr., pot. iod. 12 gr., ol. menth. pip. $\frac{1}{2}$ m., glycerin. ad 1 oz., and gargled frequently with sodii bicarbon. 15 gr. to the ounce. If granulations are a marked feature they should be cauterised.

PHLEBITIS.

Absolute rest is essential until the acute symptoms have passed off. The affected limb should be slightly elevated. The diet should be fluid at first. The bowels should be regulated daily by Epsom salts, calomel 5 gr. being given in addition at the outset. Glycerine of belladonna should be applied over the affected surface, and the limb wrapped in cotton-wool. Citric acid 30 gr. to 1 dr. should be given every four hours for four or five days. This remedy has a greater effect than any other in preventing coagulation of the blood. As the attack passes off, quinine and iron may be given. When the acuteness of the attack is over, or when the clot is firm and all tenderness has gone, gentle massage of the limb—avoiding the immediate area of the vein—helps the circulation. The patient should very gradually resume movements of the limb. It is a good plan to apply an elastic bandage at this stage, and later an elastic stocking. For some weeks the affected limb should be kept from the dependent position as much as possible.

In septic cases the appropriate vaccine should be used (*see* VACCINE THERAPY), and the question of ligaturing the vein must be considered.

PHOSPHATURIA.

If this is due to prostatic or bladder disease the cause must be treated.

If it is due to excessive work, or to gastric disturbance, a more regulated life and change of scene is advisable. Meat should be avoided at breakfast, and for a time no green vegetables should be taken. Bland fluids should be imbibed freely. The following mixture is of service: Acid nitrohydrochlor. dil. 20 m., tr. nuc. vomic. 5 m., ext. taraxaci liq. 80 m., aq. ad 1 oz., thrice daily after meals.

PHTHISIS. See TUBERCULOSIS, PULMONARY.

PITYRIASIS ROSEA.

The patient should have a hot bath to which enough potassium permanganate has been added to make it claret-colour. After drying, ung. salicyl. 5 per cent. should be well rubbed in.

PITYRIASIS RUBRA, or Exfoliative Dermatitis.

The patient should be in bed, carefully guarded against cold. The room should be kept at 65° F. The diet should be light and nutritious: alcohol, hot drinks, and food likely to cause flushing of the skin should be absolutely forbidden. When the patient begins to go about again, precautions against cold must be continued.

Local treatment.—No powerful application should be used. Mercurial applications do harm. A soothing bath may be given for an hour or more daily (starch 1 lb., or bran 2 to 5 lb., to 80 gallons of water). The patient should be put into clothes made of lint, which should be kept saturated day and night with a lotion consisting of 8 oz. liquor carbon. detergens, 8 oz. glycerin of subacetate of lead, 8 oz. pure glycerin and water to 1 gallon.

Internal medication.—Cod-liver oil should be given throughout. Vin. antimon. 5 m., syrup. papaveris $\frac{1}{2}$ dr., aq. ad $\frac{1}{2}$ oz. may be given with advantage every six hours for a few days at the commencement of treatment. Later, iron and quinine should be substituted. When the disease is chronic, arsenic in small doses is useful, but it should never be given until some improvement is shown and the acute stage has passed. Daily action of the bowels should be ensured.

PITYRIASIS VERSICOLOR.

Sponging night and morning with sulphurous-acid solution 1 to 5 is sufficient in mild cases. In more severe cases the patches should be scrubbed with sapo. mollis 4 oz., eau de Cologne 4 oz., sp. vini rect. ad 8 oz., and then ung. salicyl. 10 gr. to 1 oz. rubbed in night and morning. Treatment should be continued for a few days after the rash has gone. It is important that during treatment the clothes next the skin should be frequently changed. Flannel should not be worn next the skin, but a 'cellular' mixture of cotton and silk.

PLAGUE, BUBONIC.

Treatment is symptomatic. The patient should be kept at rest on a fluid nourishing diet. Calomel 5 gr. should be given and followed by Epsom salts. In both the bubonic and pulmonary form there is danger, even in convalescence, of cardiac failure; and if necessary alcohol and strychnine must be used freely. Morphia is often necessary for the pain or insomnia. The buboes should be painted with glycerine of belladonna. If suppuration occur, free incision is called for. Serum therapy so far has given unsatisfactory results.

Rigid precautions as to clothes, dressings, and sputum are required to prevent the *spread of infection*.

PLEURISY.**ACUTE PLEURISY WITHOUT EFFUSION.**

—The patient should be kept at rest in bed, until the temperature has been normal for a few days. The room should be well ventilated, the temperature being kept at about 60° F. The pain is best relieved by the application of leeches and the hypodermic injection of $\frac{1}{6}$ to $\frac{1}{3}$ gr. morphia. Subsequently the affected side should be strapped securely, the ends of the strapping being taken well over the sternum and the vertebral column. If pain continue, pil. saponis co. 2 gr. may be given every four hours for the first twelve hours. Calomel 5 gr. should be given at the outset, and

the bowels subsequently regulated by Epsom salts. If there is much fever, potass. bicarb. 15 gr., sodium salicyl. 15 gr., tr. aurantii 15 m., inf. aurantii ad 1 oz. may be given every three hours until six doses have been taken, and then at eight-hourly intervals. The cough may be eased by glyco-heroin 1 dr. four or five times a day. The diet should be light, consisting of milk and farinaceous foods. As soon as the condition becomes subacute, treatment should be carried out on the lines of the next paragraph.

CHRONIC PLEURISY WITHOUT EFFUSION.

—Care should be taken against undue exposure to cold. The clothing should be warm. The diet should be liberal and nutritious. Pot. cit. 10 gr., pot. iodid. 3-5 gr., aq. camphor. ad 1 oz. may be given with advantage thrice daily. After a week or two of this mixture iron and quinine should be prescribed. Equal parts of the liniment and tincture of iodine should be painted over the affected area until soreness occurs. If the progress is slow, flying blisters may be employed instead of the iodine.

If the origin of the pleurisy is tuberculous, as may be readily ascertained by a determination of the opsonic index, tuberculin should be prescribed. The initial dose of tuberculin for an adult should be $\frac{1}{10000}$ to $\frac{1}{2000}$ (see VACCINE THERAPY). The patient should live under open-air conditions, and if necessary should be sent to a sanatorium to learn how to live. The expansion of the lung should be aided by breathing-exercises as soon as convalescence is definitely established.

PLEURISY WITH EFFUSION. (For Purulent Effusion, see EMPYEMA.)—The patient should be kept at rest in bed until the effusion has disappeared. The room should be well ventilated and kept at about 60° F. The diet should be light and nutritious, the quantity of fluids being restricted to two pints in twenty-four hours. Calomel 5 gr. should be given at the outset, and the bowels moved freely each day by Epsom salts. Liq. ammonii acetatis 2 dr.,

sp. æth. nit. 15 m., aq. chloroform. 2 dr., aq. destill. ad 1 oz. may be given every four hours.

As a rule, no advantage is obtained by removing the fluid so long as fever is present. In the majority of cases the fluid is absorbed naturally.

The fluid should be removed whenever—

1. There is universal dulness of the affected side.
2. The fluid fails to be partly absorbed within a week of the temperature falling to 99° F., and in all cases at the end of two weeks whether the temperature has fallen or not.
3. Signs of pleurisy develop on the opposite side.
4. Râles develop in the opposite lung.
5. Bronchitis, or pneumonia, develops.
6. There are signs of serious embarrassment of the heart either from (a) dislocation; (b) recent or old endocarditis; (c) adherent pericardium. The urgency of such symptoms is shown by coldness of the extremities, rapid and feeble pulse, dyspnoea, and a tendency to faintness.
7. Serious affections of other organs, such as acute or chronic Bright's disease, with marked dyspnoea.
8. Urgent symptoms, whatever their cause, accompanied by cough.
9. The fluid increases in amount after having previously diminished.

If there is any suspicion of the fluid being purulent, exploration should be made with an exploratory needle. If pus is found, an operation is necessary (see EMPYEMA).

Method of withdrawing the fluid.—The skin and apparatus used should be thoroughly cleansed. A general anæsthetic should not be given. The skin may be frozen with ethyl chloride, or in exceptional cases 5 to 10 m. of a 5 per cent. solution of β -eucaine may be used at the selected point of puncture. The patient should lie on his back, the head and shoulders being slightly raised. It is a good plan to give an injection of strychnine ($\frac{1}{100}$ gr.) before puncture is

made, and a little brandy as soon as the fluid has been withdrawn. A medium-sized trocar should be used. In most cases—except loculated cases—the puncture should be made a little in front of the posterior axillary border at the level of the angle of the scapula. The needle should be kept close to the upper border of the lower rib in the selected space.

The fluid should be removed *slowly*, and the negative pressure in the aspirator should be slight. It is not necessary to remove all the fluid, as in many cases the removal of even an ounce or less is sufficient to start the process of absorption. If the fluid runs away easily as much as 50 to 70 ounces may be withdrawn. Larger quantities should not be withdrawn.

The withdrawal of fluid should be discontinued if (1) sudden faintness occurs; (2) troublesome cough develops. When the needle is withdrawn, a small pad of gauze should be applied by means of collodion.

The patient may be allowed to do more day by day if progress is satisfactory. He should use Wolff's bottles (blowing water from one to the other) the day after the fluid has been withdrawn and subsequently, for a time, to help the expansion of the lungs.

After-treatment.—If the origin of the pleural effusion is tuberculous, tuberculin should be prescribed. The initial dose of tuberculin for an adult should be $\frac{1}{10000}$ to $\frac{1}{20000}$ mgm. (see VACCINE THERAPY). The patient should live under open-air conditions, and if necessary should be sent to a sanatorium to learn how to live. The expansion of the lung should be aided by breathing-exercises as soon as convalescence is established.

In cases which owe their origin to cardiac or renal disease, the cause must receive attention.

PLEURODYNIA.

In acute cases, a hot bath and a hypodermic injection of morphia $\frac{1}{2}$ gr. should be given. The affected side of the chest should be firmly strapped, and a mixture containing sodium salicylate 20 gr. given every three hours for six doses.

In the more chronic stage, equal parts of the lin. bellad. and lin. chloroform. should be applied to the affected part, and pot. iod. 4 gr., pot. bicarb. 20 gr., aq. camphor. ad 1 oz. given every six hours. Later, arsenic may be prescribed with advantage.

PLUMBISM.

ACUTE LEAD POISONING. *See* POISONING.

LEAD COLIC. *See* COLIC, LEAD.

LEAD PALSY. *See* NEURITIS.

The cause should be removed. If the patient's work involves the use of lead, he should withdraw from his occupation for a time. Sulphate of magnesia 2 dr. should be given every morning, and iodide of potassium 5 gr. thrice daily, after meals. The teeth should be thoroughly cleansed thrice daily, and swabbed also with carbolic acid (1 in 40).

For *prophylaxis* the teeth should be cleaned after each meal, and the hands and nails scrupulously cleaned before each meal. Acid lemonade should be drunk freely, and an occasional Turkish bath or hot bath with free friction taken. When men have to work in dust containing lead, an aspirator and overall should be worn. Beer should be avoided, as it tends to produce gout in lead-workers.

PNEUMONIA.

The treatment of this disease is best considered under the headings—(1) General Treatment. (2) Symptomatic Treatment.

General treatment.—The patient should be kept at rest in bed, preferably in the supine position, no matter how mild the symptoms may be. Under no circumstances should he be allowed to sit up until the temperature has been normal for some days. When it is necessary to examine the back, the patient should be gently rolled to his side. The patient should not be allowed to talk more than is necessary, and in every way his strength should be husbanded. The room should be thoroughly ventilated. An open window is desirable, even if this keeps the

temperature of the room at 60° F. or below. Light-screens may be placed near the bed. The bed-clothes should be light. Gas and oil lamps should be avoided; if electric light is not available, candles should be used. At the onset of the attack large hot linseed-poultices, spread on flannel, should be applied every three hours for twelve hours. The poultices should extend from the spine to the sternum. At the end of twelve hours the poultices should be replaced by a cotton-wool jacket. The *mouth* should be kept thoroughly clean, and should be washed out with listerine thrice daily. The *sputum* should be carefully collected and destroyed, preferably by burning with sawdust, and the receptacle thoroughly disinfected with carbolic 1 in 10.

The *diet* should consist of 2 pints of milk and 1 of strong beef-tea in quantities of 5 oz. every two hours, when awake. One or two eggs may be added. It is most important that *flatulence* should not be produced, as respiration is hampered when this symptom is marked. The condition of the stomach should be ascertained each day. If distension occur sodium citrate 1 gr. may be added to each ounce of milk, or whey or albumin-water substituted for the milk. Beef-tea should be omitted for a time. In addition, a turpentine enema should be given. Water may be allowed freely in small sips. *Stimulants* should not be given as a routine measure, but as soon as the pulse becomes at all unsatisfactory a hypodermic injection of digitalin $\frac{1}{100}$ gr. and strychnine $\frac{1}{60}$ gr. should be given thrice daily, together with alcohol, preferably old brandy (at first 2 to 3 ounces in the twenty-four hours, but, if necessary, 12 or more ounces may be given). *Oxygen* should be used from the onset for a few minutes at a time several times a day. It is best given through a funnel held a little way from the mouth. The oxygen should be passed through a Wolff's bottle containing a little absolute alcohol slightly warmed.

Medicinal treatment.—Calomel 5 gr. should be given at the outset to an adult, and followed in six hours by a drachm

of magnesium sulphate. Pot. citras 20 gr., liq. ammonii acetatis 4 dr., aq. chloroform. ad 1 oz. may be given every six hours for the first two or three days in pneumococcic cases. In influenza cases, quin. sulph. 2 gr. may be given every four hours in an effervescing mixture.

Treatment by antipneumococcic serum and pneumococcic vaccine.—Antipneumococcic serum has not yet given very satisfactory results. Treatment by the oral administration or hypodermic injection of 20 to 50 or more million stock pneumococci at the commencement of the disease (the dose being repeated at the end of forty-eight hours if necessary) is on its trial, and so far has given good results.

Treatment at the crisis.—When the crisis is expected the nurse should not leave the bedside. Extra warm clothes and hot bottles to the extremities should be used as soon as the crisis occurs. Brandy 1 oz. in 4 oz. of hot water should be given at once, and a hypodermic injection of digitalin $\frac{1}{50}$ gr. and strychnine $\frac{1}{50}$ gr.

Treatment after the crisis.—After the crisis the milk and broths should be thickened with arrowroot. Ordinary fish diet may in most cases be given in a day or two. The amount of alcohol given should now be gradually reduced. If there is still a tendency to cardiac failure, the injections of digitalin and strychnine should be continued. All diaphoretic mixtures should be stopped. Ammon. carbon. 4 gr., sp. chloroform. 5 m., inf. quassiae ad 1 oz. three times daily five minutes before meals is, as a rule, all that is required. In ordinary cases a patient may begin to sit up in bed in a week, but the effect on the pulse must be watched. Any lasting increase of pulse-rate resulting from change of posture shows that the effort is too great, and that progress must be slower. Gentle massage of the arms and legs at this stage is useful. When the patient is able to get about, ext. cinchon. liq. 5 m., acid. nitric. dil. 8 m., syr. aurant. 20 m., aq. chloroform. ad

1 oz. may be given, as a tonic, three times a day after meals. A change for a few weeks to some bracing climate is always desirable.

Treatment of symptoms and complications.—

Cardiac failure.—If this is slight, a few leeches should be applied over the right heart. Oxygen, hypodermic injections of strychnine and digitalin, and alcohol should be given freely. In severe cases the amount of alcohol may have to be very large, and strychnine may have to be pushed until twitching occurs. If *cyanosis* is marked, together with epigastric pulsation and prominence of the jugular veins, venesection 6 to 8 oz. is the best remedy.

Cough, when troublesome, is best met by Dover's powder 5 to 10 gr., or by codeia $\frac{1}{2}$ –1 gr., as a pill thrice daily ($\frac{1}{10}$ gr. to a child of three).

Hyperpyrexia.—Whenever the temperature rises above 104° F. the body should be sponged with water at 80° F. for ten minutes. If the temperature continue to rise, the body should be wrapped in a sheet wrung out of water at 100° F. and then rubbed with ice, or, if necessary, a bath, rapidly lowered from 100° to 80° F., may be given for fifteen minutes.

Insomnia.—Cold sponging will often bring sleep. If this fails, morphia $\frac{1}{8}$ gr., repeated in an hour if necessary, is the best remedy, provided that there are no renal complications or copious bronchitis. Other remedies, such as sulphonal, trional, and paraldehyde may be tried, but are usually disappointing. In many cases a sound sleep will save life, and often this can only be obtained by the judicious use of small doses of morphia.

Nervous symptoms.—Mild symptoms of this kind are usually met by sponging with tepid water. If this measure fail, syrup. codeia 30 m., phenacetin 8 gr., mucilag. acac. 1 dr., aq. menth. pip. ad 1 oz. may be given from time to time.

Severe symptoms, such as *delirium*, *stupor*, and *great restlessness*, when associated with high fever, call for ice to the head and cold sponging. Alcohol should be given in

frequent doses with the food. If necessary, morphia $\frac{1}{3}$ gr., atropine $\frac{1}{16}$ gr. should be given hypodermically.

Pain.—If the initial pain is not rapidly relieved by poultices, 4 to 6 leeches should be applied. If this measure fail, morphia $\frac{1}{4}$ to $\frac{1}{3}$ gr. may be injected at once, and repeated again in four hours. Pain in the later stages is best met by secure strapping of the affected side.

UNRESOLVED PNEUMONIA.—The general health should be maintained by abundant food and fresh air. Pot. iod. 5 gr., sp. ammon. arom. 15 m., aq. ad 1 oz. should be given every six hours. Equal parts of the liniment and tincture of iodine should be applied until the skin is sore. The effect of gentle breathing-exercise may be tried, or gentle massage of the chest. If these measures fail, the effect of vaccines should be tried, the appropriate vaccine for the micro-organism present being used (*see VACCINE THERAPY*).

The treatment of other complications such as diarrhoea, abscess of the lung, &c., is detailed under the appropriate headings.

PNEUMOTHORAX.

The patient should be kept at rest. If there is severe pain, morphia $\frac{1}{4}$ to $\frac{1}{3}$ gr. should be injected at once. If there are marked signs of cardiac collapse, strychnine, alcohol, and hypodermic injections of ether should be given freely. The affected side should be securely strapped, the bands being placed beyond the spinal column and the sternum. If there is much over-distension of the affected side, it should be tapped and the air allowed to escape. The tapping should be repeated as often as may be necessary. If there is evidence of marked dilatation or over-strain of the right heart, venesection should be performed. In suitable cases the surgeon may attempt to close the perforation. If pus is present, or if a considerable quantity of fluid remains unabsorbed at the end of three or four weeks, the case should be treated on surgical lines by incision and drainage, an attempt being made to close the perforation at the same time.

POISONING.

In all cases of poisoning, save those due to mineral acids and strong caustics, and in all suspected cases, the stomach should be evacuated. This is best done by means of a *stomach-tube*, or syphon-tube. If these are not at hand, an *emetic* should be given. Amongst emetics may be mentioned mustard, a dessertspoonful in a tumblerful of tepid water, 80 gr. of zinc sulphate, or 10 gr. of copper sulphate, in a tumblerful of tepid water, or apomorphine $\frac{1}{10}$ gr. given hypodermically. If no tube or emetic is at hand, the fauces should be tickled with the finger or a feather.

In all cases the contents of the stomach should be preserved for examination.

If the nature of the poison is not known, and cannot be deduced from the symptoms, the following should be given: Sulphate of iron 100, water 800, calcined magnesia 88, purified animal charcoal in powder 40. The iron solution should be kept separately, and the magnesia and charcoal mixed together in a dry state in another bottle. When required, the iron solution should be mixed with water in the above proportions, and then thoroughly incorporated with the powder. A wineglassful of the mixture may be given frequently.

**BRIEF DIRECTIONS FOR THE TREATMENT
OF THE MORE COMMON FORMS OF
POISONING.**

Acetanilide. See ANTIPYRINE.

Acetylene gas. See GASES.

Acids. See under appropriate headings, Nitric, Hydrochloric, &c.

Aconite.—Recumbent position. Stomach-tube or emetic. Hypodermic injection of digitalin $\frac{1}{10}$ gr., or of tr. digitalis 20 m. Warmth, friction, free stimulation with alcohol, strychnine ($\frac{1}{10}$ gr.). If necessary, saline injections (1 dr. to 1 pint), and artificial respiration.

Alcohol.—Stomach-tube or emetic. Hot strong coffee. Rouse patient. Cold to the head Warmth to extremities.

Strychnine $\frac{1}{10}$ gr. subcutaneously. Electricity. If necessary, artificial respiration.

Almonds, essential oil of. See HYDROCYANIC ACID.

Ammonia. See CAUSTIC POTASH.

Anilin.—Stomach-tube or emetic. Free stimulation. Oxygen. Artificial respiration. Strychnine $\frac{1}{10}$ gr. subcutaneously. Bleeding, and subcutaneous injection of saline solution (1 dr. to 1 pint).

Antifebrin. See ANTIPYRINE.

Antimony.—Stomach-tube or emetic if required. Strong tea or tannic acid 80 gr. in warm water 5 oz. as often as vomiting occurs. Warmth and stimulants. Later give albumin-water and milk freely. Relieve pain by morphia.

Antipyrine.—Stomach-tube or emetic. Free stimulation with brandy. Strychnine $\frac{1}{10}$ gr. subcutaneously, together with digitalin $\frac{1}{100}$ gr. Warmth. If cyanosis, oxygen.

Aqua fortis. See NITRIC ACID.

Arsenic.—Stomach-tube or emetic. Ferric hydrate (prepared by adding $1\frac{1}{2}$ oz. of liq. (or tr.) ferri perchlorid. in a wine-glassful of water to an equal quantity of washing-soda). Repeat frequently. Instead, ounce doses of dialysed iron may be frequently repeated until ten doses have been taken; each dose to be followed by a little common salt in water. Failing these, magnesia, animal charcoal, olive oil, or lime-water, may be given freely. If prostration, free stimulation; warmth. Ice for thirst. Later, milk, eggs, barley or lime water. Morphia for pain.

Atropine.—Stomach-tube or emetic. Morphia $\frac{1}{4}$ gr., to be repeated if necessary in two hours; or pilocarpin. nitras $\frac{1}{4}$ gr., to be repeated in fifteen minutes if pulse improves. Stimulants, hot coffee. Warmth and friction; warm and cold douches. Electricity. Artificial respiration if necessary. Empty the bladder, and give purgative.

Battley's solution. See OPIUM.

Belladonna. See ATROPINE.

Benzol.—Stomach-tube or emetic. Brandy. Inhalation of ammonia or chloroform: inject subcutaneously liq. atrop. sulph. 2 m.

Blistering fluid. See CANTHARIDES.

Blue vitriol. See COPPER.

Burnett's disinfecting fluid. See ZINC.

☞ *Calabar-bean.* See PHYSOSTIGMINE.

Camphor.—Stomach-tube or emetic. Copious draughts of water. Brisk friction. Warmth. Stimulants. Saline cathartics.

Cannabis indica.—Stomach-tube or emetic, preferably apomorphine $\frac{1}{10}$ gr. hypodermically. Stimulants. Purgation.

Cantharides.—Stomach-tube or emetic, then white of egg in milk or barley-water or thin gruel. Stimulants. Morphia $\frac{1}{2}$ gr. Avoid oil and fats.

Carbolic acid.—Pass soft stomach-tube, and wash out stomach well with sodium sulphate $\frac{1}{2}$ oz. in a pint of warm water till no smell of acid in washings, or use mag. sulph. $\frac{1}{2}$ oz., or saccharated solution of lime 1 dr. in a pint of warm water. Empty stomach and give olive oil $\frac{1}{2}$ pint in pint of water, milk, and white of egg freely. Sodium or magnesium sulphate $\frac{1}{2}$ oz. in warm water. Alcohol by rectum, strychnine, warmth.

Carbonic acid. See GASES.

Carbonic monoxide. See GASES.

Caustic potash or soda.—If much destruction, do not use stomach-tube or emetic. Otherwise use soft stomach-tube with care. Give one of following freely: diluted vinegar, lemon-juice in water, citric or tartaric acid. Then milk, white of egg, olive oil $\frac{1}{2}$ pint in pint of water. Stimulants. Morphia.

Cesspool gas. See GASES.

Chloral hydrate.—Stomach-tube or emetic. Keep patient awake. Warmth. Friction. Hot coffee. Electricity. Brandy freely. Strychnine. Oxygen. Artificial respiration, if necessary.

Chlorine, inhaled.—Inhalation of chloroform or ammonia. Swallowed.—White of egg, gruel, milk.

Chlorodyne. See OPIUM.

Chloroform, inhaled.—Free air-passages. Pull tongue and lower jaw forwards. Artificial respiration. Stimulants. Strychnine. Warmth. Swallowed.—Stomach-tube or emetic. Olive oil. Hot coffee 1 pint into rectum. Stimulants. Strychnine. Artificial respiration.

Chromic acid.—Stomach-tube with great care. Chalk $\frac{1}{2}$ oz. in half-pint of milk. Olive oil, milk, gruel, or white of egg.

Cinnabar. See MERCURY.

Coal gas. See GASES.

Cocaine. Stomach-tube or emetic, if swallowed. Hot coffee, brandy, strychnine $\frac{1}{10}$ gr. Brandy.

Codeia. See OPIUM.

Colchicum.—Stomach-tube or emetic. Olive oil, milk, gruel, or white of egg. Stimulants. Later, free purgation.

Conium.—Stomach-tube or emetic. Stimulants. Strychnine $\frac{1}{16}$ gr. Artificial respiration.

Copper salts.—Before emptying stomach give milk and white of egg freely. Then wash out stomach or give emetic. 1 dr. potassium ferrocyanide in 5 oz. water; repeat as necessary. Milk, white of egg, or gruel freely, $\frac{1}{2}$ gr. morphia subcutaneously, or tr. opii 80 m. in $\frac{1}{2}$ oz. water by mouth.

Corrosive sublimate. See MERCURY.

Cresote. See CARBOLIC ACID.

Croton oil.—Stomach-tube or emetic. Morphia $\frac{1}{2}$ gr. Warmth. Friction. Free stimulation, if necessary.

Cyanide of potassium.—Stomach-tube or emetic. Ferrous sulphate 5 gr. in 5 oz. of water. Atropine sulphate $\frac{1}{16}$ gr. subcutaneously. Fresh air. Warmth. Friction. Stimulants. Electricity. Artificial respiration.

Deadly nightshade. See ATROPINE.

Digitalis.—Recumbent position. Stomach-tube or emetic. Hot strong tea freely. Or tannin 10 gr. in 2 oz. of water freely. Stimulants. Strychnine.

Dionine. See OPIUM.

Dover's powder. See OPIUM.

Elatarin.—Stomach-tube or emetic. Albumin-water, milk, or gruel. Opium.

Eserine. See PHYOSTIGMINE.

Ether. See CHLOROFORM.

Exalgin. See PHENACETIN.

Fish-poisoning. See PTOMAIN-POISONING, p. 258.

Food-poisoning. See PTOMAIN-POISONING, p. 258.

Formalin.—Liq. ammon. acetatis 4 dr. or more every half-hour; or small doses of ammonia freely diluted.

Foxglove. See DIGITALIS.

Fungi.—Stomach-tube or emetic. Atropine sulphate $\frac{1}{16}$ gr. and repeated till pupils dilate. Free stimulation. Later, castor oil and morphia.

Gases.—Avoid movement as much as possible. Fresh air. Artificial respiration if necessary. Oxygen inhalation and ammonia to nostrils. Friction, warmth, and stimulants. Intra-

venous, subcutaneous, or rectal injections of saline solution (1 dr. to pint). Venesection if much cyanosis.

Gelsemium.—Stomach-tube or emetic. Pot. bicarbonate freely. Tannin 10 gr., or strong tea. Atropine sulphate $\frac{1}{10}$ to $\frac{1}{5}$ gr. and repeated if necessary. Free stimulation. Warmth. Artificial respiration.

Hemlock. See CONIUM.

Henbane. See ATROPINE.

Heroin. See OPIUM.

Hydrochloric acid.—Do not use stomach-tube or emetic. If much corrosion. Give chalk, wall-plaster, sodium, or potassium carbonate in plenty of water, or large draughts of soap and water. Then milk, albumin-water, gruel, or olive oil $\frac{1}{4}$ pint in 1 pint of water. For pain, morphia.

Hydrocyanic acid.—Fresh air. Dash cold water over face and spine. Rapid emetic. Artificial respiration. Brandy by rectum. Ether injection. Atropine sulphate $\frac{1}{5}$ gr. subcutaneously.

Hyoscyamus. See ATROPINE.

Iodides.—Stomach-tube or emetic. Bicarbonate of soda 2 dr. in half-tumblerful of water. Barley-water, milk, or gruel freely. Stimulants. Morphia.

Iodine.—Stomach-tube or emetic. Starch, arrowroot, potatoes, and water freely. Later barley-water, milk, gruel, stimulants, morphia.

Iodoform. See IODIDES.

Laburnum.—Stomach-tube, even if vomiting. Stimulants; friction. Barley-water, milk, gruel freely.

Laudanum. See OPIUM.

Lead salts.—Stomach-tube or emetic. Magnesium sulphate $\frac{1}{2}$ oz. in tumblerful of water, or dilute sulphuric acid 30 m. Milk, albumin-water, gruel, barley-water freely. Morphia. Later, potassium iodide.

Lime.—Any aerated water or vinegar. Then olive oil $\frac{1}{4}$ pint in pint of water, milk, albumin-water.

Lobelia.—Recumbent position. Stomach-tube or emetic. Stimulants. Warmth. Hot strong coffee or tea.

Matches. See PHOSPHORUS.

Mercury salts.—Emetic, or if in early stage stomach-tube with great care. Albumin-water freely; barley-water, milk, or

gruel freely. Olive oil $\frac{1}{4}$ pint in pint of water. Warmth. Alcohol subcutaneously. Later, morphia.

Morphia. See OPIUM.

Muriatic acid. See HYDROCHLORIC ACID.

Muscarine. See FUNGI.

Mushrooms. See FUNGI.

Mussel-poisoning. See PTOMAIN-POISONING, p. 258.

Nepenthe. See OPIUM.

Nicotine.—Recumbent position. Stomach-tube or emetic. Stimulants. Warmth. Hot strong coffee or tea. Strychnine $\frac{3}{16}$ gr.

Nitric acid.—Do not use stomach-tube or emetic. Give chalk, wall-plaster, sodium, or potassium carbonate in plenty of water, or large draughts of soap and water. Then milk, albumin-water, gruel, or olive oil $\frac{1}{4}$ pint in one pint of water. Morphia.

Nitrobenzene.—Stomach-tube or emetic. Atropine $\frac{3}{16}$ gr. subcutaneously. Friction. Galvanism. Artificial respiration. No oil or alcohol.

Nitroglycerin.—Recumbent posture. Cold affusion. Later, atropine $\frac{3}{16}$ gr. subcutaneously.

Nitrous oxide gas. See CHLOROFORM.

Nux vomica. See STRYCHNINE.

Opium.—Also in poisoning by hypodermic injection of morphia. Stomach-tube or emetic. Hot coffee by rectum. Wash out stomach with solution of potassium permanganate (1 gr. to 2 oz. of water). Wash out stomach again two or three times at intervals of half an hour with weak solution of potassium permanganate. Cold douche. Warmth to extremities. Atropine sulphate $\frac{3}{16}$ gr. subcutaneously once only. Strychnine $\frac{3}{16}$ gr. every two hours. Oxygen. Electricity. Constant movement to prevent sleep, but not to point of exhaustion. Artificial respiration if necessary.

Oxalic acid.—Do not use stomach-tube or emetic. Give chalk, wall-plaster, sodium, or potassium carbonate in plenty of water, or large draughts of soap and water. Then milk, albumin-water, gruel, or olive oil $\frac{1}{4}$ pint in pint of water. Morphia.

Paraffin.—Stomach-tube or emetic. Stimulants. Warmth. Friction.

Paraldehyde. See CHLORAL.

Petroleum. See PARAFFIN.

Phenacetin.—Recumbent position. Stimulants. Warmth. Strychnine $\frac{1}{10}$ gr. and digitalin $\frac{1}{100}$ gr. subcutaneously. Artificial respiration.

Phenol. See CARBOLIC ACID.

Phosphorus.—Stomach-tube or emetic. (Copper sulphate acts as an antidote as well as an emetic. Give 3 gr. every fifteen minutes till free vomiting.) Wash out stomach with potassium permanganate 5 gr. to 1 oz. Old, or French, oil of turpentine 40 m. in 1 oz. of water every fifteen minutes for four doses, then thrice daily; or solution of hydrogen peroxide. Albumin-water, gruel, milk. Magnesium sulphate $\frac{1}{2}$ oz. as purgative. Morphia for pain. Avoid oils and butter and fats.

Physostigmine.—Stomach-tube or emetic. Tannin 80 gr. in water or strong hot tea. Atropine $\frac{1}{10}$ gr. subcutaneously, and repeated till pupils dilate; stimulants, warmth, friction. Artificial respiration. Strychnine.

Pilocarpine.—Stomach-tube or emetic. Tannin 10 gr. in water or strong hot tea. Atropine sulphate $\frac{1}{10}$ gr. subcutaneously.

Potash, caustic. See CAUSTIC POTASH.

Potassium chlorate.—Emetic or stomach-tube very cautiously. Albumin-water, milk, or gruel freely. Warmth. Magnesium sulphate $\frac{1}{2}$ oz. as purgative.

Prussic acid. See HYDROCYANIC ACID.

PTomaine-poisoning.—See PTOMAINE-POISONING, p. 258.

Rat pastes.—Contain arsenic or phosphorus or sometimes strychnine.

Red precipitate. See MERCURY SALTS.

Resorcin. See PHENACETIN.

Salts of lemon. See OXALIC ACID.

Salts of sorrel. See OXALIC ACID.

Santonin.—Stomach-tube or emetic. Stimulants. Warmth. Castor oil 1 oz. If convulsions, chloral and bromides.

Sewer-gas. See GASES.

Silver salts.—Stomach-tube or emetic. Wash out freely with common salt $\frac{1}{2}$ oz. in pint of water. Albumin-water and milk freely.

Snake-bite. See SNAKE-BITE, p. 280.

Soap lees. See CAUSTIC POTASH.

Soda, caustic. See CAUSTIC SODA.

Spanish fly. See CANTHARIDES.

Stramonium. See ATROPINE.

Strychnine.—If convulsions severe, control by chloroform. Stomach-tube or emetic (apomorphine $\frac{1}{10}$ gr.). If seen at once give potassium permanganate (1 gr. in 2 oz.) in water, and repeat in half an hour. Potassium bromide 2 dr. in 5 oz. of water by mouth, or rectum every quarter of an hour if necessary. Alcohol freely. Warmth. Artificial respiration.

Sugar of lead. See LEAD SALTS.

Sulphonol.—Recumbent position. Stomach-tube or emetic. Stimulants. Warmth. Sodium bicarbonate freely. Strychnine $\frac{1}{10}$ gr., digitalin $\frac{1}{100}$ gr. subcutaneously. Electricity. Draw off urine. Artificial respiration.

Sulphuretted hydrogen. See GASES.

Sulphuric acid.—Do not use stomach-tube or emetic. Give chalk, wall-plaster, sodium, or potassium carbonate in plenty of water, or large draughts of soap and water. Then milk, albumin-water, gruel, or olive oil $\frac{1}{2}$ pint in 1 pint of water. Morphia.

Tartar emetic. See ANTIMONY.

Trional. See SULPHONOL.

Tobacco.—Recumbent position. Stomach-tube or emetic. Stimulants. Warmth. Hot strong coffee or tea.

Turpentine.—Stomach-tube or emetic. Milk, albumin-water, gruel freely. Morphia. Magnes. sulph. 1 oz. in 5 oz. water as purge.

Veratrine.—Recumbent position. Stomach-tube or emetic. Hypodermic injection of digitalin $\frac{1}{100}$ gr. or of tr. digitalis 20 m. Warmth. Friction. Free stimulation with alcohol and strychnine $\frac{1}{10}$ gr. If necessary, saline injections (1 dr. to 1 pint) and artificial respiration.

Verdigris. See COPPER.

Vermilion. See MERCURY.

Vermin-killers usually contain strychnine, arsenic, and phosphorus.

Veronal. See SULPHONOL.

Vitriol, blue. See COPPER.

Vitriol, white. See ZINC.

White precipitate. See MERCURY.

Zinc salts.—If not much erosion, stomach-tube carefully, or apomorphine $\frac{1}{10}$ gr. Egg-albumin and milk freely. Sodium bicarbonate, or washing-soda, diluted freely. Strong hot tea. Morphia.

POLIOMYELITIS, ACUTE ANTERIOR. See
PARALYSIS, INFANTILE.**PRURITUS.**

By this is meant itching without any obvious cause. In all cases silk should be worn next the skin. The itching is sometimes due to dryness of the skin : in such cases grease should be rubbed in at night. In other cases it is due to cold : in such cases warm clothing should be worn, and exposure to cold and the use of cold baths avoided. In other cases it depends on intestinal absorption : in these magnesii sulph. 80 gr., acid. hydrocyan. dil. 8 m., aq. menth. pip. ad 1 oz. may be given each morning, and calcium lactate 15 gr., ext. glycyrrhiz. liq. 80 m., aq. anisi ad 1 oz., thrice daily for ten days.

For the *immediate relief of the itching* a warm bath should be prescribed. Half a pound of sodium bicarbonate should be added to the bath. After the bath lanoline should be well rubbed in. The following lotion gives temporary relief : Acid. carbolic. 2 dr., glycerin. 4 dr., aq. ad 8 oz.

PRURITUS ANI and PRURITUS VULVÆ.

This distressing malady often is very intractable ; at the same time it is nearly always curable if the patient persistently follow out the directions given him. A few cases are due to a neurosis, but, as a rule, *the cause of each case* can be ascertained by careful investigation. The itching may depend on gout or diabetes, or on too free eating and drinking. Particular articles, such as ale, champagne, crab or other shellfish, spirits or coffee, may induce it in particular cases. Want of exercise and excessive smoking predispose many people to this malady. Many local causes may cause itching—*e.g.* constipation, uterine disorders, piles, proctitis, polypus, fistula or fissure, chronic diarrhoea or other discharge, thread-worms, pediculi, or eczema.

Local treatment.—Whatever the cause, the affected parts should be kept scrupulously clean and *dry*.

Local causes must receive attention if present ; but all cases must at the same time receive general treatment, or the results will be disappointing. If a polypus, piles, or fissure are present an operation should be performed. If thread-worms are present they must be treated. Similarly, the other local causes cited above must receive appropriate treatment. If the skin around the anus is much thickened, fomentations of carbolic lotion 1 in 60 should be applied every night for a week. If this treatment fails to bring the skin back to its normal condition, it should be cut off or burnt away under an anæsthetic.

When the itching is very great and sleep impossible, a bone plug shaped like the nipple of an infant's feeding-bottle, with a circular shield to prevent it from slipping into the bowel, should be introduced into the anus at bedtime. Scratching should be avoided. The part should be kept thoroughly dry by the use of boracic powder, and should be washed in oatmeal and water before the application of any local remedy. If soap is used, Castile should be employed. After an action of the bowels, paper should not be used, but cotton-wool, and the part should then be washed with 1 in 40 carbolic acid and carefully dried.

As a rule, ointments are more useful than lotions, but if ointments fail lotions should be given a trial. Chloroform. 2 dr., glycerin. $\frac{1}{2}$ oz., with ung. sambuci floris $1\frac{1}{2}$ oz., is often useful ; ung. conii (B.P.) affords relief in many instances. When eczema is marked, the following lotion may be tried : Liq. carbon. detergen. 1 oz., glycerini 1 oz., zinci oxidi $\frac{1}{2}$ oz., pulv. calamin. præcip. $\frac{1}{2}$ oz., pulv. sulph. præcip. $\frac{1}{2}$ oz., aquam ad 16 oz., the part to be painted thickly over twice a day and allowed to dry. In other cases the part may be thickly dusted over with carbonate of bismuth.

Cocaine and morphia are seldom of service, and sometimes aggravate the complaint.

In *refractory cases* the cutaneous nerves of the affected area should be divided.

General treatment.—The diet should be low, and should consist chiefly of fish, poultry, vegetables, and ripe fruits. Meat and excess of farinaceous food should be avoided. No sugar should be taken. Coffee should be replaced by weak tea or cocoa. Champagne, beer, and spirits do harm. A sponge-bath every day, and a warm bath once a week should be prescribed. The patient should walk at least three to four miles a day. The bowels should be regulated by mineral waters or magnes. sulph. 30 gr., acid. sulph. dil. 5 m., fe. sulph. 1 gr., ess. menth. pip. 2 m., aq. ad 1 oz., once or twice a day. In nervous cases arsenic and quinine should be given in full doses. Gout should be treated on general lines. In debilitated cases a sleeping-draught may be given from time to time if necessary—Ammon. bromid. 5 gr., potass. bromid. 15 gr., chloral. hydras 10 gr., aq. chloroform. ad 1 oz.

PSORIASIS.

The patient should wear silk or linen next the skin. The general health should be improved by good food, fresh air, and exercise, but not to the point of perspiration. The *bowels* should be well opened, and in many cases magnesium sulphate 80 gr. may be given with advantage every morning for a week or two. The scalp must always be treated as mentioned under Local Treatment.

Internal treatment.—In chronic cases *arsenic* is of value. It should not be given if the spots are 'angry' and increasing in number. Small doses should be given at first, and these should be increased till the disease shows improvement, or unpleasant symptoms develop. When there is distinct improvement, there is no necessity to increase the dose further. One of the best forms of administration is acid. arsenios. $\frac{1}{2}$ –1 gr., piper. nigri 5 gr., gummi arabic. 1 gr., intimately mixed together, and then rubbed up with sufficient ext. gentian, or ext. taraxaci to make 100 pills, one pill to be taken at first twice, and then thrice a day after food.

In acute cases, or when the disease is spreading, *sodium salicylate* should be given in 15 to 20 gr. doses, thrice daily.

Local treatment.—In all forms of local treatment it is essential that the remedies should be continued long after the disease has gone, and that they should be *immediately* applied again as soon as there is the slightest sign of the return of the disease. It is particularly important that treatment of the scalp should be continued for many months to avoid any recurrence of seborrhœa.

The scalp should be thoroughly scrubbed daily for the seborrhœa with *sapo. mollis* 4 oz., *eau de Cologne* 1 oz., *sp. vin. rect.* ad 8 oz., and twice a day an ointment of *salicylic acid* $\frac{1}{2}$ dr. to 1 oz. rubbed in.

A *hot bath* should be taken twice daily. It is of service to add about 4 oz. *sodium bicarbonate* to the bath. While in the bath, the patient should scrub the affected parts to remove the scales. After the bath he should be well rubbed, and then, after being rolled in a blanket till the skin is thoroughly dry, the special external application chosen should be applied.

Of external applications three may be mentioned—viz. *tar*, *chrysarobin*, and *salicylic acid*.

Tar.—This may be applied to any part of the body except the scalp twice daily as an ointment—*Olei cadini* 1, *ceræ flavæ* 1; or the following lotion may be dabbed on at frequent intervals—*Liq. carbon. deterg.* 4 dr., *glycerin.* 4 dr., *aq.* ad 8 oz.

Chrysarobin.—Treatment with this remedy involves confinement to the house. Its use must be restricted to the body, the scalp and face being untouched. The oldest clothes must be used. An ointment containing 5 gr. *chrysarobin* should be rubbed in twice daily, and lint smeared with the ointment bandaged on. A daily bath should be taken. The drug should be carefully applied only to the diseased areas, healthy skin being left untouched. The drug is useless unless persistently used until the diseased spots have passed through the stage (usually reached in a week) in which they stand out white,

and have arrived at the stage in which they have become uniformly red (usually reached in ten to twelve days). When this condition is attained, zinc ointment should be substituted. Careful watch should be kept for any new spots which may arise; these should be painted with salicylic collodion 1 dr. to 1 oz.

Salicylic acid is of most service in limited cases. Salicylic acid 5 to 10 per cent. in vaseline is the most convenient form.

In some cases it is advisable to try the effect of combined remedies. In such cases the ointment of Hutchinson may be tried—viz. Liq. carb. deterg. 10 m., hydrarg. ammon. 10 gr., chrysarobin 10 gr., creosot. 20 m., benzoated lard ad 1 oz.; or the following: Chrysarobin 5, ichthyol 5, salicylic acid 2, vaselin 88 parts.

If the psoriasis is very intractable to persistent treatment, *bath treatment* should be tried. The sulphur baths of Harrogate, Strathpeffer, and Luchon are the best. Bath and Buxton waters are sometimes useful, as are the arsenical waters of Aix-les-Bains, La Bourboule, and Royat.

PTYALISM.

1. **DUE TO MERCURIALISM.**—Attention should be paid to the nutrition, and stimulants should be given if necessary. Pot. chlorat. 1 in 40 of water should be used as a mouth-wash every hour. Pot. chlorat. 10 gr., acid. hydrochlor. dil. 10 m., tr. fe. perchlor. 15 m., aq. dest. ad 1 oz. should be given thrice daily.

2. **DUE TO REFLEX ACTION.**—Opium should be given till dryness of the throat occurs.

PTOMAIN-POISONING.

The patient should be kept at rest in bed, and thoroughly warm. If the pain is at all severe, $\frac{1}{4}$ to $\frac{1}{2}$ gr. of morphia should be injected. Calomel 5 gr. should be given at once, and followed in eight hours by free flushing of the lower bowel with a copious enema, slowly introduced. The diarrhoea, if severe, should be checked by opium. Salol 5 gr. may be given every two hours. If

there is prostration, alcohol and strychnine should be given freely, and if necessary normal saline solution by the rectum or subcutaneously. In some cases atropine $\frac{1}{160}$ gr. acts well as an antidote. The diet should consist of small quantities of boiled milk diluted with barley-water, and containing 1 gr. sodium citrate to each ounce of milk.

PURPURA.

The cause, if possible, should be removed. The condition is sometimes dependent upon the presence of sepsis, oral or other. If sepsis is present, it must be treated actively (*see* VACCINE THERAPY). If purpura is marked, complete rest is essential. As far as possible the patient should live under open-air conditions. The diet should be light but nutritious, with *fresh* meat, milk, and vegetables. When there is hæmorrhage from the mucous membranes, the diet should be cold.

Medicinal treatment.—Calcium lactate 15 gr., ext. glycyrrhiz. liq. 80 m., liq. calcis 4 dr., aq. anisi ad 1 oz. should be given every six hours for three or four days. Fresh horse-serum 10 to 20 c.c. should also be given every day two hours after food by the mouth or rectum for three or four days, and then at intervals of three days. The internal administration of capsules of ol. terebinth. 15 m. thrice daily may be tried if the above fails to produce improvement. It is advisable in all cases to give a small dose of mercury, such as hyd. c. cret. 2 to 8 gr., for a few nights. Tonics are of value. Tr. fe. perchlor. 15 m., pot. chlor. 5 gr., glycerin. 80 m., aq. camphor. ad 1 oz. may be given every six hours. At the end of a week an arsenic mixture may be substituted for the iron mixture.

PURPURA WITH CHRONIC ECZEMA calls for the above treatment together with local applications of liquid extract of arnica 8 to 5 per cent.

PURPURA RHEUMATICA (Peliosis Rheumatica)

Calls for treatment on similar lines to that given above, except that sodii salicyl. 15 gr., sodii bromid.

8 gr., tr. aurantii 80 m., aq. ad 1 oz. may be given every six hours instead of the iron mixture.

PYÆMIA.

Rest, with highly nutritious diet and alcohol, is necessary. Care should be taken to see that the sanitary conditions are satisfactory and that there is an abundant supply of fresh air.

Any abscesses present should be opened and drained freely.

The micro-organisms present should be isolated and vaccines prepared and given (*see* VACCINE THERAPY). Large doses, 20 to 80 m., of tr. fe. perchlorid. are sometimes of service.

PYORRHŒA ALVEOLARIS.

In mild cases.—The mouth should be kept thoroughly clean, and should be washed out frequently with listerin. The teeth should be washed after each meal and the gums and roots thoroughly swabbed with sodii bicarb. 10 gr., acid. carbol. 8 gr., glycerin. 1 dr., aq. ad 1 oz. If the teeth are very sensitive, solid silver nitrate should be applied.

In severe cases.—The treatment should be on the above lines. In addition, the teeth, if affected, should be extracted. If the general health is not markedly affected, the micro-organisms present in a carefully collected portion of the pus should be grown and a vaccine made and used (*see* VACCINE THERAPY) for a time before the question of extraction is decided.

QUINSY. *See* TONSILLITIS.

RAYNAUD'S DISEASE.

Rest, warm clothing, and warmth to the extremities are essential. The diet should be nutritious and contain an abundance of fat. Stimulants are not required as a rule. The bowels should be carefully regulated. Drugs are of little service, but if there is a history of malaria, 10 gr. of quinine should be injected into the deep muscles once a day. If there is much pain, a pill containing $\frac{1}{4}$ gr. of opium should

be given three times a day. Cod-liver oil and iron from time to time are of service. Electricity is often of value. The affected limbs should be placed in a vessel containing normal salt solution. One pole of the constant-current battery should be kept in the liquid and the other pole in contact with the skin of the limb above the water-level. The current should be as strong as can be borne, and frequently broken. The patient should at the same time move the affected fingers or toes. Later Swedish movements may be of service.

After the attack has subsided, the patient should always avoid undue exposure to cold.

RENAL CALCULUS. See **STONE IN KIDNEY.**

RHEUMATISM.

ACUTE RHEUMATIC FEVER.—The first essential is absolute rest in bed. This should be continued for at least a fortnight after the temperature has become normal. Then, if no serious cardiac complication exist, passive movements and gentle massage may be commenced, and later the patient allowed to sit up, and finally to get up and take gentle exercise. In cases in which there is much feebleness of the heart-sounds, or in which a definite murmur is present, no movement should be allowed until adequate compensation has been established (*see* **HEART, DISEASES OF: ACUTE AND CHRONIC ENDOCARDITIS**). Whenever movement of any kind is permitted, a careful watch must be kept on the rapidity of the pulse. If the pulse-rate is persistently increased, the exercise permitted is too great. In such cases further rest is required before any attempt to allow more movement is permitted.

The *room* should be kept at 60° to 65° F., and should be well ventilated. The *clothes* should be light, the patient being clothed in light loose flannels and placed between thin blankets. Hot fomentations should be applied to the affected joints, which should be enveloped in cotton-wool and lightly bandaged over.

The *diet* is of great importance. Nothing but milk (8 to 4 pints) should be given until the temperature has been normal for forty-eight hours. Soups, beef-tea, and meat extracts increase the tendency to relapse. If the milk is not well borne, 1 gr. of sodium citrate should be added to each ounce. Water may be taken freely. After the temperature has been normal for forty-eight hours, bread and butter and farinaceous food may be given. No fish or meat or beef-tea should be given until the temperature has been normal for at least ten days. If meat or soup is given before this date, relapses are more common.

Medicinal treatment.—*Salicylates* should be given in such a manner that the patient is placed fully under the influence of the drug as soon as possible. Sodii salicyl. natural. 20 gr., sodii bromid. 5 gr., inf. aurant. 1 oz. should be given every hour for three doses, or, if the head remains unaffected, for four doses. The mixture should then be given every four hours until the patient has slight buzzing in the ears, or headache. When this is achieved, 100 to 80 gr. in twenty-four hours is sufficient; but 80 gr. should be given daily, unless it causes buzzing in the ears, for ten days after all pain and fever have gone. If the salicylate causes sickness, it is best to give salicylic acid (natural) in cachets. There is no advantage in combining alkalies with the above. The amount of urine passed each day should be watched. If albumin is present, the remedy must be discontinued.

Calomel.—It is of the utmost importance that the above treatment should be combined with a daily satisfactory action of the bowels. At the outset, calomel 5 gr. should be given at night, and followed by a saline in the morning. Whenever the bowels are unopened in the twenty-four hours, and whenever any little elevation of temperature or increased pulse-rate occurs, the calomel should be repeated.

The mouth should be washed out daily with listerine, or, better, swabbed out with 1 in 40 carbolic acid. If there are slight elevations of the temperature during convalescence,

the cause may sometimes be found in septic absorption from diseased teeth, which should be removed.

In the later stages an iron-and-quinine tonic is of value. If there is any tendency to permanent joint-trouble, potassium iodide should be given in 5 to 10 gr. doses, and blisters applied to the affected joint.

Complications. — For Endocarditis, see HEART, DISEASES OF, p. 142.

Hyperpyrexia does not yield to drugs as a rule, and is best met by the use of the cold bath. The patient should be gently lifted in a sheet into a bath at 90° F., which should then be rapidly cooled by the addition of ice to 75° F. The patient should be taken out of the bath in fifteen minutes, or sooner, if his temperature has fallen four degrees. Collapse sometimes occurs; therefore the patient must be closely watched, and stimulants given when necessary. If the temperature rises again, the bath should be repeated. If no bath is available, the patient should be enveloped in a sheet and rubbed with ice.

RHEUMATISM, CHRONIC.

The treatment of chronic rheumatism is best considered under the following headings :

1. Fibrositis in the neighbourhood of Joints.
2. Muscular Fibrositis and Myalgia.

FIBROSITIS IN THE NEIGHBOURHOOD OF JOINTS.—The patient should be warmly but lightly clad. The garments next the skin should be cellular, and composed of silk and wool. Damp and cold should be avoided. Variations of temperature should be guarded against. The diet should contain an excess of fat and a minimum of meat. Alcohol is contra-indicated.

The disease is in many instances dependent upon gastro-intestinal intoxication; consequently the bowels should be carefully regulated by means of calomel, or rhubarb, and grey powders. The diet should be light and nutritious, and rest for half an hour before meals should

be prescribed. *Locally*, mesotan, painted on the affected part, often gives relief. *Baths* are of great value. The best form is the radiant-heat bath. If this is not obtainable, a hot bath of over 100° F., or the hot wet pack, should be prescribed.

If subacute symptoms are present, it is wise to rest the affected limb at first. In all chronic cases, and in subacute cases as soon as the acuter symptoms have gone, massage and passive movement are of great value.

Medicinal treatment.—If there is a history of definite rheumatism, aspirin 10 gr. in cachet, or sodium salicylate 10 to 15 gr., thrice daily, should be given for a few days. The most useful medicine, however, is potassium iodide 10 gr. in a mixture thrice daily, together with pulv. guaiaci co. 10 gr. in a cachet thrice daily. When the above treatment does not lead to amelioration, treatment at a *spa* should be advised. In England, Buxton, Harrogate, Llandrindod, or Woodhall Spa are available in the summer; Bath or Sidmouth in the winter. Abroad, the best spa is Aix-les-Bains (summer); other spas are Vichy, Luchon, and Baden-Baden.

MUSCULAR FIBROSITIS AND MYALGIA.—

Here, again, the patient should be warmly but lightly clad. The garments next the skin should be cellular, and composed of silk and wool. Damp or cold and variations of temperature should be avoided. The diet should contain an excess of fat and a minimum of meat. Alcohol is contra-indicated. A daily complete evacuation of the bowels should be obtained by means of calomel, the avoidance of intestinal indigestion being of the first importance. At the outset a hot bath (100° F.) should be prescribed, and pulv. antimonial. 4 gr. given at night. A mustard poultice may be applied locally, and later equal parts of lin. camphor. and lin. chloroform. Massage from the outset is of great value. In persistent cases, massage and radiant-heat baths, together with electricity, usually give relief.

Medicinal remedies.—In cases with a definite history of rheumatism, sodii salicyl. 10 to 15 gr., or aspirin 10 gr., may be given thrice daily. When these do not give relief, potassium iodide should be given in 10 gr. doses thrice daily.

Treatment at a *spa* may be advisable, as in the case of arthritic fibrositis.

RHEUMATISM, GONORRHŒAL.

The patient should be kept at rest. The *diet* should be abundant and nutritious. Alcohol should be avoided.

Medicinal treatment.—The *bowels* should be moved daily, if necessary, by means of calomel. The *urethra* may be gently irrigated every hour with plain warm water, alternating with pot. permanganate $\frac{1}{4}$ gr. to the ounce. Potassium iodide is the most useful drug, and pot. iod. 5 gr., pot. bicarb. 20 gr., sp. ammon. aromat. 15 m., inf. aurant. ad 1 oz. may be given twice or thrice daily. When this fails, iron and quinine should be given.

Treatment by vaccines.—If the above treatment is not responded to, a vaccine should be prepared from the patient's own micro-organism, and its effect tried. One to five millions may be given in 10 c.c. normal saline solution two hours after food every four or five days. The same dose may be given, with longer intervals, hypodermically if this method is preferred. If no improvement follow, and no rise of temperature, the dose may be cautiously increased. If higher fever result, the dose must be diminished. The acute stage is diminished in length by the use of small doses of the vaccine. In the chronic forms, treatment with the appropriate vaccine is attended with excellent results. In those cases in which the joints have to be incised, previous treatment with the vaccine diminishes the tendency to ankylosis, and gives much better results than are ordinarily obtained, so far as the mobility of the joint is concerned.

Local treatment.—The affected joints should be kept absolutely at rest. They may be painted with equal parts

of lin. camphor. and lin. chloroform. and wrapped in cotton-wool. Cradles should be used to keep the weight of the bed-clothes off painful joints. Later, Scott's dressing and strapping should be applied if the fluid is not absorbed. If pus form, or if the swelling of the joints continue, together with fever, the affected joints should be incised and irrigated. As the inflammation subsides, gentle massage and passive movements should be prescribed.

RHEUMATOID ARTHRITIS.

Every possible cause should be sought for, and, if found, remedied if possible—*e.g.* great mental exertion or worry, frequent pregnancies, over-lactation, &c. All exposure to cold and damp or change of temperature should be avoided. The patient should live, if possible, in a dry, warm, equable climate on a well-drained soil. The clothes should be warm and light: those next the skin should be cellular and composed of a mixture of wool and silk. In acute cases rest in bed is necessary. The *diet* should be generous and sustaining, with a sufficient quantity of *fresh* meat and green vegetables. Fat is of considerable value, as are butter and cream. If *alcohol* is advised the best form is port: beer sometimes does harm.

Medicinal treatment is not of much value except in so far as it is directed to help nutrition. In *acute cases* pot. iodid. 10 gr. may be given if there is much pain. Flannel dusted with flowers of sulphur should be wrapped round the affected joints. In *chronic cases* the best remedy is cod-liver oil. The simplest plan is to give 1 dr. at night after the patient has gone to bed, as, given in this way, it causes no disturbance. Gradually the amount should be increased until 1 oz. is taken each night. Potassii iodid. in 5 gr. doses in a mixture together with pulv. guaiaci co. 10 gr., in cachet, may be given for some months and alternated with a course of arsenic.

Serum treatment.—In some cases good results have followed the use of antidiphtheritic or polyvalent anti-

streptococcic serum ; 10 c.c. may be given by the mouth or rectum daily two hours after food for some weeks, or 10 c.c. may be injected hypodermically.

Local treatment.—The best local application is flannel dusted with *flowers of sulphur*. The latter may also be dusted in the stockings. Occasionally flying blisters are of service.

Massage and exercise.—These are of great value. The joints should never be allowed to remain for long in a fixed position. Exercise when possible should be insisted on, and should be combined with gentle massage. When exercise is impossible, a course of passive movements and gentle massage should be prescribed.

Baths.—The electric bath and radiant-heat bath should be combined with the massage.

Treatment by counter-irritation of the spinal centres.—In all early cases as soon as the acuter stages have gone, and in all chronic cases which are showing no improvement, counter-irritation of the spinal centres is the form of treatment which gives the best results. An area of three inches square, having its centre at the seventh cervical spine, is well painted over with liquor epispasticus, and the blistered surface afterwards kept open for ten days by means of the daily application of savin ointment. The blister in the cervical region should be applied whatever the distribution of the affection. In cases where the legs are much affected, a similar blister, 8 in. by 8 in., should be applied subsequently on each side of the last dorsal and first lumbar vertebræ. This blister should also be kept open for ten days by the daily application of savin ointment. In the majority of cases great improvement follows this treatment. In some, where the results are not so striking, further applications of the blister should be made in a month or six weeks.

Spa treatment.—Much benefit often results from a course at a spa. Droitwich, Harrogate, and Buxton may be

advised in the summer; Bath and Sidmouth in the winter. Abroad, Aix-les-Bains, Baden-Baden, and Wiesbaden may be mentioned.

RICKETS. (For Scurvy Rickets, *see* SCURVY, INFANTILE.)

The earlier treatment is begun the more effective it is. The best results are obtained between the sixth and fifteenth months; after the fifteenth to eighteenth month constitutional treatment is of little avail.

Perfect cleanliness, both of the child, its clothes, and its feeding apparatus, should be enforced. The clothes should be light and warm, a knitted jersey and a pair of loose-knitted drawers being next the skin. The child should have abundance of fresh air and sunlight, and the windows should be kept open day and night. If the neighbourhood is unhealthy a change of climate should be prescribed. The child should have a cold sponge-bath every morning. Care must be taken to avoid deformities while the bones are soft. The legs should be tied to plain lateral splints, as these limit movement and diminish risk of deformities. The child should not be allowed to sit up for long, nor should the nurse always carry him on the same arm. The limbs and trunk muscles should be rubbed and massaged for half an hour night and morning.

Diet.—If a child is rickety through the deficiency of his mother's milk, a wet nurse should be obtained, or artificial feeding employed (*see* INFANT FEEDING). A child which is being suckled at two years of age should be weaned at once. Children of twelve months and upwards should have good milk, with gravy, custard-pudding, broccoli, or cauliflower, once a day. Children of eighteen months or more should have underdone pounded meat in addition.

Medicinal treatment.—Cod-liver oil is the best medicine, 20 drops to a drachm being given thrice daily, according to the age of the child. To this may be added a teaspoonful of malt-extract twice daily. Phosphorated

oil $\frac{1}{2}$ m. in olive oil may be given twice a day, but is seldom of value. If diarrhoea and vomiting are present, the cod-liver oil should not be given. If there is marked anæmia, $\frac{1}{2}$ dr. to 1 dr. of syrup of lactophosphate of lime and iron should be given, well diluted, twice daily.

If *diarrhoea* is marked, there should be a preliminary purge with fluid magnesia. If the diet does not control this complication, bicarbonate of soda 4 gr., bismuth carbonate 2 gr., syrup of tolu 10 m., water to 1 dr., thrice daily, may be given, and, if necessary, vin. opii 1 m. added.

RINGWORM.

OF THE SCALP.—The best results are obtained by the skilful use of *x-rays*. As a rule, an exposure of twenty minutes, the distance of the tube from the patch varying with different tubes, is followed within three weeks by complete loss of the diseased hair. The patch and the surrounding margin should then be treated with ung. hydrarg. ammon. The ointment should be thoroughly rubbed in for twenty minutes each day.

OF THE SKIN.—The thorough daily application of any antiseptic ointment, such as ung. hydrarg. ammon., will destroy ringworm on smooth parts of the skin. To prevent the scalp being affected, the hair should be washed daily with an antiseptic soap, and some antiseptic ointment rubbed in well afterwards.

Preventive treatment.—If ringworm of the scalp or skin is present in one member of the family, rigid precautions against infection of the other members must be taken. If the scalp is affected, care must be taken that the child affected does not use the head-coverings of others. His own head-covering should have a fresh lining daily, the old lining being burnt. The hair of the other children should be kept short and should be washed daily with an antiseptic soap. After the head has been washed, ung. hydrarg. ammon. or other antiseptic ointment should be rubbed into the scalp.

ROSACEA. *See* ACNE ROSACEA.

RÖTHELN. *See* RUBELLA.

ROUND-WORMS. *See* ASCARIS LUMBRICOIDES.

RUBELLA (or German Measles).

Incubation period ten to twenty-two days. In many instances mild cases of measles or scarlet fever are diagnosed as German measles. It is never safe to make this diagnosis unless there is an epidemic. The patient should be isolated. No treatment as a rule is required, but symptoms and complications must be treated as they arise.
SCABIES.

Before going to bed the patient should have a hot bath containing 8 oz. of sulphide of potash to 80 oz. of water, and the body should be thoroughly scrubbed with soft soap. After the bath, ung. sulph. should be well rubbed into the body, except the face and scalp. The clothes should be baked before being used, and for a few nights it is a good plan to dust a teaspoonful of flowers of sulphur over the sleeping-clothes. If the above treatment is objected to, hot baths for a few nights, followed by free use of sulphur soap, are efficient.

When there is much eczema or pustulation, sulphur should not be used, but β -naphthol ointment (5 to 10 per cent.) substituted. It should be remembered that β -naphthol, if used to excess, occasionally causes poisoning.

SCARLET FEVER.

Incubation period up to seven days. A suspect should be isolated for one week. *Period of infectivity* lasts until desquamation is complete and there is no discharge from the nose or ear, usually in four to five weeks. *The fever as a rule continues for eight days.*

Scarlet fever is commonly spread by direct contagion or through milk. The patient should be isolated, and children who have been exposed to infection should be quarantined, and not sent away for at least a week.

The patient may be allowed out of bed after the temperature has been normal for a week, provided there is no severe

complication. The *bed-room* should be as airy as possible, and should contain a minimum of furniture and hangings. There should be an open grate. It is an advantage if there are two communicating rooms, one for the day and one for the night. Failing this, there should be two beds in the sick-room. The bed-clothes should be light. Open-air conditions diminish the tendency to nephritis. Thorough ventilation, preferably by open windows, should therefore be maintained. Light-screens may be placed near the bed, and the temperature of the room kept at about 60° F.

For disinfection measures, see DISINFECTION.

The *mouth and throat* must receive attention. The mouth should be freely washed out three or four times a day with hydrogen peroxide 5 volumes per cent., and the throat sprayed with glycerin. boracic. 4 dr. to 2 oz. If there is much *pain* in the throat, hot fomentations should be applied and small quantities of ice sucked. The *urine* should be examined daily, and if albumin appears and persists after the first two or three weeks the patient should be treated for nephritis (*see below*). The *condition of the ears* should be examined daily, and if pain or other symptoms of otitis media are present, the case treated for otitis (*see below*). The skin should be gently rubbed with carbolic oil 1 in 50 from the first.

The *diet* should be fluid for a period of three weeks. If no nephritis is present, a gradual return to ordinary diet may be permitted. *Alcohol* should be avoided if possible, unless the severity of the symptoms necessitate its use. In mild cases no *internal medicinal treatment* is required, except to regulate the bowels.

Treatment during convalescence.—As soon as the fever and rash have gone the patient should have a warm bath daily and be well soaped. The bath should be brought to the bedside. After the bath, carbolised vaseline 1 to 25 may be rubbed all over the body-surface. If the skin becomes irritated, bran-baths should be substituted for

the soap and water. The patient may be allowed to lie on a sofa in a dressing-gown a week after the fever has gone. In another week he may be allowed to walk about in clothes. In another week he should have a change of air. Iron and quinine may be prescribed with advantage.

Complications.—*Cervical cellulitis* calls for fomentation, and later, if necessary, incisions under aseptic conditions.

Headache is best relieved by aspirin 5 to 10 gr. thrice daily.

Heart-failure calls for alcohol, strychnine, and digitalis.

Hyperpyrexia may sometimes be controlled by cold sponging; if this fail, the cold pack, or a bath at 90° F. rapidly lowered to 75° F. by means of ice and continued for ten to fifteen minutes, should be prescribed and repeated if necessary. Antipyretic drugs are seldom of value in this condition.

Nervous symptoms are best relieved by ice-applications to the head and cold sponging. Phenacetin 5 to 10 gr. will often control restlessness and induce sleep.

Joint-pains.—The affected joints should be wrapped in wool, and aspirin 5 to 10 gr. given thrice daily. The diet should consist entirely of milk, and the bowels should be well moved by calomel.

Nephritis.—The treatment of this complication is given under BRIGHT'S DISEASE, ACUTE. If there is albuminuria, the diet should consist only of milk. When the albumin has considerably diminished the diet may be increased gradually, farinaceous food, fish, chicken, and finally meat being added. In all cases when albuminuria occurs the patient should be kept in bed until the amount of albumin is small. He may then sit up in a dressing-gown. When the albumin has disappeared he may be allowed to get up and dress, and in warm weather to go out of doors.

Otitis media.—For the pain, the best remedy is a minim or two of warm laudanum dropped into the ear. Hot fomentations should also be applied. If pain is severe, one or

two leeches should be applied over the mastoid process. If the tympanic membrane is bulging it should be punctured.

Rhinorrhœa.—The child should be prevented from picking his nostrils, if necessary, by the use of a cardboard splint on the arms. The nasal passages should be syringed or douched two or three times a day with permanganate of potash 5 gr. to the ounce.

Septic complications.—The nasal passages should be thoroughly and freely douched as often as is necessary—*e.g.* from every eight to every three hours—with permanganate of potash 5 gr. to the ounce, and the mouth washed out with hydrogen peroxide 5 to 10 vols. per cent. As the local condition improves, the douching and washing should be less frequent, and the surface swabbed two or three times a day with carbolic acid 1 in 40.

Alcohol should be given together with tr. digitalis 1 m., tr. fe. perchlor. 8 m., liq. strychnine 1 m., aq. chloroform. ad $\frac{1}{2}$ oz. for a child of five years, every four or six hours.

SCHOTT-NAUHEIM TREATMENT.

This can be carried out at home, or in special institutions, or at Bad Nauheim, the season for which is from May to the end of September. The treatment in skilled hands is of great service in cases of failing compensation in disorders of the heart. It is of the greatest service in cases recovering slowly from an attack of acute rheumatism or other fever, in which the heart has become dilated and adequate compensation has not been established. Little advantage follows its use in cases in which there is marked arteriosclerosis. Its use is not unattended with danger when the case is so severe as to require complete rest in bed.

The medical man should personally superintend the treatment.

After a course of baths and exercises the patient should have an after-cure of a month's duration in some dry place where walking-exercise is obtainable both on the flat and on gentle inclines.

DETAILS OF THE SCHOTT-NAUHEIM TREATMENT.

The administration of the baths.—When in the bath the patient should have his head supported at an angle of 45°, and his head and neck should not be immersed. He should abstain from talking, and should not move more than he can help. If there is a feeling of oppression, a few deep inspirations should be taken. Immediately after the bath the patient should be well dried by means of friction applied by a warm towel enveloping his whole body, preferably in the sitting posture.

The patient should now go to bed for one hour, in order that he may sleep, and during this time he should not be allowed to write, read, or talk.

Frequency of the baths.—The baths should be given on two consecutive days, and the exercises on the third day, for the first ten days or fortnight. The baths may then be given for three days in succession and the exercises on the fourth day. Each case must be treated on its merits, and where there is very marked dilatation or debility of the heart, the baths should be given every other day and the exercises on the intervening days. In cases of great weakness or of neurasthenia, it is necessary to prescribe one bath at a time and to follow it with several days of complete rest. The number of baths in a course varies from twenty to thirty, and the average length of the course is from five to six weeks.

Strength of the baths.—It is usual to begin with a three or four minutes' bath, at a temperature of 97° or 98° F., containing 4 to 5 lb. of Droitwich salt and 5 to 6 oz. of calcium chloride in 40 gallons of water. The pulse is taken before, during, and after the bath. As the result of the bath there is usually a diminution in the frequency of the pulse, together with an increase in volume and a lowering of tension.

A bath of similar strength, temperature, and duration should be given on the following day if the first one has been beneficial. On the third day the exercises, referred to later on, are usually given instead of the bath. Each case requires individual consideration. If the pulse becomes more rapid during the immersion or after the bath on two or three successive occasions, the patient is either an unsuitable case, or he has had a sufficiently

long course of baths, or they are too strong, too frequent, of wrong temperature, or of too long duration. If the patient does well and the circulatory system reacts satisfactorily, the strength of the bath is increased by 1 lb. of sodium chloride and 1 oz. of calcium chloride from the second bath up to the tenth. From the tenth bath the sodium chloride may be reduced by 1 lb. and the calcium chloride by 1 oz., and one-half of a carbonated effervescent bath (to be obtained from chemists) should be added.

If this bath gives satisfactory results, the strength of the bath may be again increased by 1 lb. of sodium chloride and 1 oz. of calcium chloride every second bath. At the same time the effervescence should be gradually increased, so that an entire effervescent bath is given on the eighteenth occasion.

At the end of the course the patient is having a bath containing 12 lb. of sodium chloride, 14 oz. of calcium chloride, and the whole of an effervescent bath.

Duration of immersion.—The first bath should last three to four minutes; every second bath may be lengthened by one minute. When the first effervescent bath is given, the time may be shortened by one or two minutes and subsequently increased.

Temperature of the baths.—The temperature of the first bath should be 97° F., and the temperature of every second bath should be lowered one degree Fahrenheit until 94° F. is reached. The temperature has to be closely watched, as many instances of good reaction are not obtained when this is below 96° F.

After the bath the patient may have a hot-water bottle in bed, and if he does not remain comfortably warm the temperature of the next bath must be a little higher.

Resistance exercises.—In some cases the baths cannot be tolerated at first, and in those a set or part of a set of the following exercises may be given once a day for a fortnight or longer, and then the baths commenced.

The exercises should not be given within one hour of a meal. The patient, if a man, should remove his coat, waistcoat, and braces; a woman should remove her corsets and wear a dressing-jacket and a short light skirt. The patient should breathe regularly during the exercises; he should sit down for a few minutes between each exercise, and should lie down for half an hour's complete rest after they are concluded. The exercises

must be given slowly and steadily. The attendant should exert uniform resistance, just sufficient to oppose but not to arrest the movement. Little exertion on the patient's part should be called for, and in no case should fatigue be produced. The pulse and rate of breathing especially should be watched. If the pulse-rate is increased, or the tension is increased, or the volume is diminished after any exercises, the next set should be of less resistance and of shorter duration. If palpitation, yawning, sweating, or duskiess occur, the exercises must be immediately interrupted.

The following may be mentioned as examples of the various exercises. They may be given in any order, but two successive movements should not exercise the same limb or muscles. Other exercises can be readily devised on similar lines. If the patient is confined to bed or to a chair, the exercises must be modified to his condition.

Arm exercises.—*Movement 1.*—The patient stands facing the operator with his arms extended in front of him and his hands meeting in mid-line. The operator places his hands lightly on the back of the patient's wrists. The patient then slowly and gradually opens his arms to their full extent, the operator resisting the movement by slight pressure against the wrists. The operator then places his hands on the palms of the patient's hands and uses the same force of resistance to the patient in bringing his hands and arms to the position from which they started.

Movement 2.—The patient stands with his hands as at attention, the movement consisting in slowly raising the arms above the head and then back again to the original position. In each case the operator places his hands against the wrists, so that the movement is done against resistance.

Movement 3.—The patient raises his hands against resistance, as before, from the position of attention to above his head. He then brings his arms slowly down in front of him from above.

Movement 4.—The patient stands with his right arm at attention; the operator holds the arm at the elbow, and then the patient flexes the forearm until his hand rests on the corresponding shoulder-joint. The patient then extends his forearm back to the position of attention, again against the resistance of the attendant.

The same movements are then gone through with the other arm.

Movement 5.—The patient stands with his forearms folded across his chest and with the palmar surfaces of his hands in contact with one another. The arms in this position should then be raised, against the resistance of the attendant, slowly above the head; the patient then brings his arms back to the original position, against resistance.

Movement 6.—The patient stands at attention and raises his arms directly backwards and upwards as far as possible, against resistance of the attendant; he then brings his arms back to the original position, against resistance.

Leg exercises.—In all these exercises the patient steadies himself by placing his hand on the back of a chair.

Movement 1.—The patient raises his right leg slowly, flexing it at the hip directly forwards and upwards, so that his foot is raised about two feet from the ground. This is done against the resistance of the attendant. The patient then brings his leg back to the original position, against the resistance of the attendant.

The same movements are then gone through with the other leg.

Movement 2.—The patient raises his right leg, slowly extending it at the hip directly backwards and upwards to a position so that the foot is raised one or more feet from the ground, against the resistance of the attendant. The patient then brings his leg back to the original position, again against the resistance of the attendant.

The same movements are then gone through with the other leg.

Movement 3.—The patient slowly abducts his right leg as far as possible, against the resistance of the attendant, and then, against resistance, brings his leg back to the original position.

The same movements are then gone through with the other leg.

Movement 4.—The patient raises his right leg slowly, flexing it at the knee and hip until the thigh is horizontal, resistance being applied by the attendant to the dorsum of the foot. The leg is then brought back to the original position, resistance being applied to the sole of the foot.

The same movements are then gone through with the other leg.

Movement 5.—The patient stands in the erect position, placing his right foot forward and across the front of the left foot and describing a small half-circle round the left foot, the attendant resisting the movement with the right hand on the inner side of the right leg. The patient then brings his right foot back to the original position, the attendant resisting with his left hand to the external surface of the right leg.

The same movements are then gone through with the other foot.

Body movements.—In these movements the attendant offers resistance with *both* hands throughout the movement.

Movement 1.—The attendant stands at the right side of the patient and places his left hand in the small of the patient's back, passing the right arm in front of the patient's chest and placing his right hand on the patient's left shoulder. The patient then slowly flexes his body at the hips, bending directly forwards and downwards. The operator changes the position of his hands so that his left hand rests between the scapulæ of the patient's back and his right hand is placed over the manubrium sterni. The patient then slowly brings his body back to the erect position.

Movement 2.—The attendant and the patient stand facing one another, the patient being in the position of attention. The operator places his right hand high up in the patient's left axilla and his left hand low down in the right axilla. The patient then flexes his body at the hips, bending directly sideways to the left. The attendant now places his left hand high up in the patient's right axilla and his right hand low down in the patient's left axilla. The patient brings his body back to the erect position, and then flexes it directly sideways to the right as far as possible. The attendant again changes the position of his hands, so that the right hand is high up in the patient's left axilla and the left hand low down in the patient's right axilla. The patient then brings his body back to the erect position.

Movement 3.—The patient and the attendant stand facing one another, the operator having his right hand resting on the left clavicle of the patient and his left hand resting on the right shoulder of the patient. The patient then rotates his body on his hips, bringing the left shoulder as far forward as possible. The attendant now changes the position of his hands, placing his right hand on the patient's left shoulder and his left hand

in front of the patient's right clavicle. The patient then rotates his body on his hips, bringing his right shoulder as far forward as possible. The attendant now changes his hands back to the original position, and the patient rotates his body back to the original position.

SCIATICA.

In the majority of cases no obvious cause can be found, but it must be remembered that sciatica is often merely a symptom of disease of the spinal cord, the vertebræ, the pelvis, or hip-joint, and that it may arise from disease of the rectum, or from constipation. When a definite cause is present, it must receive attention.

The earlier *complete rest* is enforced the more likely is treatment to be successful. The patient should go to bed, and keep as still as possible until the acute symptoms have passed off. The limb should be wrapped in wool, and a splint should be employed, or, if this is unsatisfactory, the movement of the limb should be limited by sand-bags and the limb itself supported by a pillow. The *diet* should consist at first of milk and farinaceous foods. Alcohol should be avoided.

Medicinal treatment.—The bowels should be well opened by calomel, and subsequently by Epsom salts. At first sodium salicylate 15 gr. should be given four times daily. If this produces no result in a few days, potassium iodide 5 gr. thrice daily should be substituted. In gouty cases, vin. colchici 10 m. may be added to the mixture. In other cases, quinine 1 gr. thrice daily is of value. The *pain* in some cases is kept in check by the above measures, combined with the application of equal parts of chloroform and camphor liniments. When these measures fail, we must rely on local hypodermic injections of cocaine or morphia. These remedies must be kept in the hands of the physician, and, if possible, the patient should not be told what he is having. It is wise to combine the use of these drugs with *acupuncture*. Thus, $\frac{1}{8}$ to $\frac{1}{2}$ gr. of morphia

or $\frac{1}{8}$ to $\frac{1}{4}$ gr. cocaine should be added to 80 m. of distilled water. Portions of this should be injected by means of a hypodermic syringe *deeply* along the course of the nerve in *several* places. The needle should be inserted at right-angles to the surface when the nerve lies deep, as it is necessary that the nerve-trunk itself should be punctured. In some cases, it is necessary to use flying blisters along the course of the nerve, two days being allowed to elapse between each application.

The use of heat is of great value as soon as the acute symptoms have passed off, or in the early stages of a mild attack. Radiant-heat baths are the best form of application, but hot sand-bags or a hot iron may be employed.

Massage and passive movements should be prescribed as soon as the acute symptoms have passed. *Galvanism* is of service when given either by means of a bath or by direct application. A current of 2 to 5 milliampères for ten minutes is sufficient.

Surgical measures may be necessary in intractable cases.

Prophylaxis.—To prevent further attacks, the patient should avoid cold, sitting on hard or wet seats, over-fatigue, constipation. The diet should not contain excess of sweet things; champagne and beer should not be taken. An occasional Turkish bath with massage is of value.

SCLERODERMA.

Treatment is unsatisfactory. The general health should receive attention. A course of arsenic may be of benefit. Skilled massage of the affected part, together with the inunction of ung. hydrarg. amm., is sometimes useful. The effect of small doses of thyroid extract may be tried.

SCLEROSIS, DISSEMINATED.

The treatment of this disease is symptomatic. The patient should be protected from worry and fatigue. Pregnancy increases the severity of the symptoms. The general health should receive attention, and ample rest should be taken.

A prolonged course of pot. iodid. 5 to 10 gr. thrice daily does something to retard the progress of the disease. If there is a syphilitic history, small doses of mercury should be given in addition. Massage is useful ; electricity useless.

SCURVY.

The essential things are attention to the general health and to the diet. The patient should be removed from insanitary surroundings. *The diet* should at first consist of pure milk, together with *fresh* vegetables or fruits. Grape, orange, or lemon juice, diluted with water, may be given every few hours. Later, fresh beef-juice may be added, and, as soon as the condition of the gums permits, underdone meats may be given. Sodium lactate 15 to 20 gr. should be prescribed thrice daily, for three or four days. *The mouth* should be washed out frequently with peroxide of hydrogen (5 to 10 vols. per cent.) or listerine ; if there is much fœtor, potassium chlorate 10 gr. to 1 oz. may be used instead. If the gums are spongy, they should be touched with solid silver nitrate.

If *hæmorrhage* is profuse, calcium lactate 20 gr. four times daily should be tried ; if the hæmorrhage continues, 20 c.c. of fresh horse-serum should be taken daily by the mouth.

When the acute symptoms have subsided, *iron and cod-liver oil* are the best remedies.

INFANTILE SCURVY.—The use of any proprietary food should be stopped, and the child given pure unboiled cow's milk. An ounce of fresh beef-juice should be given in addition in the twenty-four hours. A few teaspoonfuls of grape, orange, or lemon juice should be prescribed each day. If the limbs are affected, they should be swathed in wool and kept in position by sand-bags, the weight of the bedclothes being borne by a cradle. Sodium lactate (10 gr.) should be prescribed thrice daily for three or four days to increase the alkalinity of the blood.

Cod-liver oil and malt, $\frac{1}{2}$ to 1 dr., and vin. ferri, $\frac{1}{2}$ to 1 dr. should be given twice a day.

SEA-SICKNESS.

Prophylactic.—The diet should be carefully regulated for a week before the voyage, excess of fat, farinaceous food, vegetables, and fruit being avoided. Both starvation and hearty eating are to be avoided. It is of great importance that the bowels should be well flushed out some days before the voyage. A week before the voyage pil. hydrargyri 5 gr. should be given at night, followed by a magnesium mixture in the morning. A daily evacuation should then be maintained by magnesium sulphate if necessary; and a few hours before the voyage a large warm-water enema should be given. As soon as the individual gets on board ship he should lie down in a *well-ventilated* place, with his head low and eyes closed. A light abdominal binder, to give support, is of service. The clothes should be warm, and great care should be taken to keep warm, especially about the extremities. As soon as there is any nausea, the administration of validol 10 to 15 m. on a piece of sugar is often of service. Chloretone in capsules (5–10 gr.) is stated to prevent sea-sickness in some persons. In very susceptible cases sodium bromide 10 to 20 gr. may be given thrice daily before embarking.

When vomiting occurs iced champagne should be given, and a hypodermic injection of strychnine $\frac{1}{80}$ gr. and atropin. sulph. $\frac{1}{160}$ gr. Food in small quantities—*e.g.* iced milk—should be insisted upon after a time. Lavage of the stomach in obstinate cases is of great value.

SEBORRHŒA.

The scalp should be washed daily with sapo. mollis 4 oz., eau de Cologne 4 oz., sp. vini rect. 4 oz., all the soap being washed away by repeated applications of warm water. An ointment containing 5 to 10 per cent. sulphur and 5 to 10 per cent. salicylic acid should then be thoroughly rubbed in. The strength of the ointment may be increased in suitable cases.

If the skin is affected it should be thoroughly washed, and sulphur and salicylic-acid ointment rubbed in. The reaction of the skin must determine the strength in each case. In most instances a commencement can be made with a 5 per cent. strength. If the eruption is moist, a paste gives better results than an ointment. If the eruption is extensive a lotion is preferable, and the strength of the sulphur and salicylic acid should be less, to avoid undue absorption.

SEPTICÆMIA AND PYÆMIA.

If suppurating wounds are present they must be thoroughly dealt with. Any abscess which exists should be opened. The patient should be placed in sanitary surroundings with an abundant supply of fresh air, and kept free from movement and as quiet as possible. The diet must be nutritious and sustaining. Alcohol should be given freely. Daily saline injections into the rectum are of considerable value. Perchloride of iron should be given every six hours in 20 to 30 m. doses. Opium may be necessary to allay restlessness and want of sleep. In convalescence iron and quinine should be prescribed.

Vaccine treatment.—The organism or organisms responsible should be isolated and the appropriate vaccines used (*see VACCINE THERAPY*).

SLEEPING-SICKNESS.

When cerebral symptoms have developed, no treatment is of avail. In other cases atoxyl, a compound of arsenic, should be given by means of intra-muscular injections. The best method of employing atoxyl is still an open question. The dose varies with the condition of the patient. One method which has given good results is as follows: A 10 per cent. solution of atoxyl in normal saline solution is used. The initial dose is 3 gr. This is increased daily by $\frac{1}{4}$ gr. until a dose of 12 or more grains is reached. If there are no signs of poisoning, this daily dose is continued for two or three weeks according to the gravity of the case. The dose is then diminished by $\frac{1}{4}$ gr. until a dose of 3 gr.

daily is reached. The treatment is now interrupted for one or two months. The length of treatment necessary is uncertain; it would appear to be a wise precaution to give the above courses at intervals for two years.

SLEEPLESSNESS. See INSOMNIA.

SMALLPOX.

Period of incubation from nine to fifteen days; a suspect should be isolated for fifteen days. Persons brought in contact with the patient should be vaccinated. *A patient suffering from smallpox should be isolated until all scabs have separated and all ulcers healed.*

The room should be airy, well ventilated, and somewhat darkened. Rigid precautions should be taken with regard to *disinfection* of all infected articles (*see* DISINFECTION). In mild cases the patient need not remain in bed for more than a few days. In other cases he should remain in bed until the temperature is normal and he has begun to regain his strength. A water-bed should be employed if the eruption is profuse.

The diet should be fluid until the temperature is normal. An initial dose of calomel should be prescribed, and the bowels regulated by Epsom salts. Otherwise medicinal treatment must depend upon the symptoms.

The eyes should be frequently bathed with boracic-acid lotion (10 gr. to 1 oz.), and vaseline should be smeared on the lids to prevent them from sticking to one another. If ulcers appear, they should be dressed with ung. hydr. ox. flav. (1 gr. to 1 dr.), to which atropin. ($\frac{1}{4}$ to $\frac{1}{2}$ gr. to each dr.) is added. The mouth should be kept clean, and washed daily with peroxide of hydrogen 5 to 10 vols. per cent.

The eruption should be treated by boracic lint. This should be kept moist by cold water, covered with oil-silk, and changed every few hours. The face should be covered by a mask made of a single layer of lint, holes being cut for eyes, mouth, and nose. A layer of linseed-meal poultice should be spread on the lint, and on this some vaseline and a little iodoform should be spread. The mask should be

changed every two hours. It is a good plan on the seventh or eighth day to prick all pustules with a stout needle, as pocking is then apt to be less marked.

Warm baths are useful during pustulation. In severe cases the continuous use of the bath is of much value.

Lumbar pain is best met by linseed poultices and anti-pyrine 10 gr. thrice daily. *Vomiting* is best treated by the hypodermic injection of morphia $\frac{1}{6}$ to $\frac{1}{3}$ gr. *Sleeplessness*, if marked, is best treated by opium or by hypodermic injections of morphia. *Delirium* requires constant guarding, cold sponging, and full doses of opium. *Swelling of the tongue* usually yields to ice: if this fails, an incision should be made on either side.

SNAKE-BITE.

A ligature should be immediately and thoroughly applied round the limb on the heart side of the bite, and should be kept on for half an hour, with an occasional loosening for a few seconds. The wound should be thoroughly irrigated. If this is not possible, it should be thoroughly sucked, and the mouth well washed out afterwards. Forty minims of a 1 per cent. solution of potassium permanganate should be injected subcutaneously in the immediate neighbourhood of the bite. If collapse occurs, alcohol and strychnine should be used freely, and if necessary free intravenous injection of warm saline solution should be given. Artificial respiration may be necessary. The use of *antivenene* has not been attended with satisfactory results, but, if it is available, it may be used.

SPERMATORRHOEA.

The cause must be sought and dealt with—*e.g.* sexual excess, self-abuse, the reading of impure and quack literature. Apart from plain speaking on the physiological aspects of the matter, and the necessity of assuring the patient that there is nothing much the matter, little is necessary beyond placing the patient under the best conditions for maintaining his health.

Early rising, cold baths, vigorous exercise, fresh-air life, avoidance of alcohol, of excess of meat, and of condiments, together with a cold sponge before retiring, and for a few nights 30 to 40 gr. of sodium bromide, will soon relieve the condition.

SPLENIC ANÆMIA.

This condition calls for rest in bed with an abundance of fresh air and sunlight, nourishing food, regulation of the bowels, and some preparation of iron. If the blood approaches that of pernicious anæmia, arsenic should also be given. In some cases in which the spleen is very large some benefit follows the use of *x*-rays. *Splenectomy* has been followed by fair results in cases in which the anæmia has not been too advanced.

SPRUE.

Complete *rest* in bed is essential. The *bowels* should be well opened at the outset by castor oil, and subsequently constipation should be carefully guarded against by small doses of the same drug (usually 1 dr. is sufficient). Drastic purgation does harm.

Diet.—Whenever possible, this should consist entirely of milk: 5 oz. of boiled milk with 1·5 gr. sodium citrate to each oz. of milk should be given every two hours. If there is difficulty in continuing this diet until the motions become formed, *fresh* fruit may be allowed in abundance and raw beef-juice given. In some cases it is necessary to omit all milk. In these cases 5 oz. of pounded fresh meat may be given thrice daily, and a good beef or calf's foot jelly every two hours between the feeds. In addition, in these cases, fresh fruit may be given. Alcohol does harm.

Medicinal treatment.—Drugs as a rule are useless, but in some cases benefit follows the use of *santonin* 3 gr. in castor oil 1 dr. for six successive days. On the analogy of other ulcerative conditions, fresh horse-serum 10 c.c. may be given daily by the mouth or rectum for a few weeks. *The mouth* should be kept clean with listerine, the ulcers

being painted with horse-serum. If the mouth-ulcers are very painful they should be painted with a 5 per cent. solution of cocaine. Opium internally does harm.

During convalescence the diet may be more varied; thus, stewed fruit (unpreserved), fish, and, later, farinaceous food may be allowed, but the return to a normal diet must be made most gradually, and with great caution. Stimulants and condiments should be avoided. If relapse occur, a purely milk diet must be given. Care must be taken to avoid chill: a 'cholera-belt' should be worn, and the extremities kept warm. Constipation should be avoided, by the use of small doses of castor oil when necessary.

STAMMERING.

1. Any obstruction to respiration must be dealt with. For example, if adenoids are present and are not removed no good will result from systematic exercises.

2. The general health should receive attention, and any cause of nervous irritation or depression treated.

3. Systematic breathing-exercises, diaphragmatic and costal, should be prescribed.

4. Systematic reading and elocution lessons should be given for a considerable period of time by a well-trained instructor.

STATUS EPILEPTICUS. *See p. 115.*

STOMACH, DILATATION OF.

If the condition is due to definite obstruction, the case should be treated as soon as possible by surgical measures.

If no obstruction is present, the patient should go to bed in healthy surroundings. The condition of the body should be improved by gentle general massage. In severe cases, treatment in a nursing-home for some three months is necessary.

Diet.—Feeding at first should be at intervals of four hours. Sugar, sweets, fruit, pastry, milky puddings, bread, and much fat or butter should be avoided. The diet should contain as little liquid as possible at first, and consist mainly of beef-juice, raw meat, beef-peptones, toast, and meat jellies.

At first milk should not be given; if it is, it should be given diluted and in small quantities between meals: 15 gr. of sodium citrate should be added to each 10 oz. of milk. As little fluid should be given at meals as possible. At first fluid—viz. one pint of warm saline solution—may be given by the rectum twice daily, and last thing at night half a pint of hot water containing 10 gr. sodium bicarbonate may be sipped. Later, as the case improves, the quantity of water injected may be lessened and the quantity taken by mouth increased. Hot water should now be taken an hour and a half before or after meals, three pints being taken in twenty-four hours.

As the case improves the diet may be made more liberal, and small quantities of green vegetables added; but it is necessary not to proceed too fast, especially as regards carbohydrates and fats.

Lavage.—All cases are benefited by washing out the stomach daily with warm water until the water coming away is clear. As improvement sets in, the washing out may be performed at gradually increasing intervals.

Medicinal treatment.—Sodii bicarbonas 10 gr., acid. hydrocyan. dil. 8 m., inf. gent. co. ad 1 oz. may be given fifteen minutes before meals four times daily; and acid. hydrochlor. dil. 8 m., vin. pepsini $\frac{1}{2}$ dr., tr. nuc. vom. 5 m., inf. aurantii 1 oz. fifteen minutes after meals. The *bowels* should be opened daily, and if medicine is required for this purpose the best is magnesium sulphate.

Convalescence.—As soon as the condition has improved, exercise in the fresh air should be encouraged. Great care should be taken to avoid fatigue or over-exertion. The patient for some months should make a point of resting on a sofa for an hour before meals and for twenty minutes after meals. A properly fitting *belt* should be worn. The *diet* should be sufficient; large quantities at a time or large quantities of fluid should be avoided. Sweet things and farinaceous food should be only

allowed in strict moderation. Iron in its milder forms may be given as the patient improves.

In intractable cases, after a prolonged course of treatment has failed, the question of gastro-jejunostomy being performed should be considered.

STOMATITIS.

APHTHOUS, CATARRHAL, ULCERATIVE, HERPETIC.—The cause must be removed. Stomatitis may be due to errors of diet, excess of alcohol or tobacco, rough or carious teeth, the use of mercury, &c.

In adults the diet should be regulated, and a mouth-wash of potass. chlorat. 90 gr., glycerin. boracis 4 dr., aq. rosæ ad 8 oz. used freely.

In children food should be given cold, and, if there is severe pain, by a nasal tube. The child should be allowed to suck ice in moderation. Strict cleanliness with regard to feeding-utensils, clothes, &c., is essential.

The *mouth* should be kept thoroughly clean by means of frequent applications (by swabbing) of half a teaspoonful of Condy's fluid to the pint. If the ulcers are large, a solution of powdered burnt alum 10 gr. to 1 oz. may be applied by brush every other day; if there is much pain, and healing is slow, the powdered burnt alum may be applied direct, and if this fails the ulcers may be touched with solid silver nitrate.

Internal medication.—Potassium chlorate 2 gr. to the ounce may be given every hour for the first twenty-four hours, every two hours for the second twenty-four hours, and then at longer intervals.

As improvement sets in, tincture of cinchona 5 m., dil. hydrochloric acid 5 m. may be added, and later an iron mixture.

GANGRENOUS (Cancrum Oris) calls for free incision, together with cauterisation by fuming nitric acid under an anæsthetic. The mouth should be kept clean by means of hydrogen peroxide 5 to 10 vols. per cent. The

general treatment should be supporting and stimulating. In some cases the use of antistreptococcic serum or of the appropriate vaccine has done good.

STONE IN THE KIDNEY. (*See also COLIC, RENAL; and GRAVEL.*)

In *severe or recurrent cases*, or in cases in which medical treatment has failed to give relief, *surgical measures* should be considered.

In cases in which the stone consists of *phosphates*, hard mental work should be avoided, and sufficient exercise taken. Change of scene is often of service. The diet should be easily digestible. Small quantities of alcohol are of service. The following prescription may be given for a time: Urotropin 8 gr., sodii phosphas acid. 20 gr., acid. nitrohydrochl. dil. 10 m., inf. gent. co. ad 1 oz. after breakfast and dinner. In obstinate cases, treatment at a spa such as Bad Wildungen should be advised.

In cases in which the stone consists of *uric acid* the general health should receive attention and fatigue should be avoided. An almost fluid diet should be prescribed. Meat and alcohol should be avoided. In addition, the free use of waters such as Contrexéville should be advised, together with potassii citr. 1 dr., aq. dest. ad 4 oz. every three hours till the urine is alkaline, and afterwards in sufficient doses to keep it alkaline. In obstinate cases, treatment at a spa such as Contrexéville or Vittel should be advised.

STY.

The eyelash should be removed, and a needle, dipped in pure carbolic acid, applied to the spot. This should be followed by hot fomentations and the application of hydrargyri oxid. flav. 4 gr., paraffin. moll. 1 oz. If pus appears, a small incision should be made and fomentations applied to the lids night and morning.

In recurrent cases a course of sodii salicyl. 10 gr., with gentle purgation, should be given. If seborrhœa

capitis is present, as it often is in such cases, it should receive attention (*see* SEBORRHOEA).

SUNSTROKE.

The patient should be placed on his back in a cool place. The clothes should be loosened. In mild cases cold water should be dashed on the face and chest. In more severe cases iced baths should be employed, or the patient rubbed with ice until the temperature falls to 104° F. Strychnine ($\frac{1}{80}$ to $\frac{1}{16}$ gr.) should then be injected, and repeated if necessary. If breathing has ceased, artificial respiration should be employed and strychnine given at once. Venesection does harm.

SYCOSIS.

The condition must be carefully distinguished from ringworm of the beard, eczema, and impetigo contagiosa. True sycosis is a very chronic affection, and requires prolonged treatment, as otherwise it always returns.

It is best that the hair should be shaved. Ordinary soap should not be used, but Eichhoff's soap, containing sulphur, camphor, and balsam of Peru. Extreme cleanliness of all materials used is necessary. The loose hair in the centre of the pustules should be removed before shaving. If much crust is present, it should be softened by a starch-poultice. Ung. salicyl. (B.P.) should be gently rubbed into the skin twice daily. If any irritation is set up, ung. zinci should be substituted for a time. In debilitated subjects iron and quinine &c. are of service. In more severe cases the application of *x-rays* by an expert is useful.

Treatment on the above lines should be continued for some months after the disappearance of the disease, and the beard should not be allowed to grow for at least a year after all trace of the disease has gone.

In *intractable cases* a trial should be made of vaccine therapy.

SYPHILIS (Acquired).

In all cases the patient must be made to understand (1) the serious nature of the disease; (2) the necessity for

prolonged treatment; (8) the channels through which the disease may be communicated to others.

General treatment.—The patient must live as healthy a life as possible. Open-air conditions are of great value, but undue exposure to cold and wet should be avoided. Exercise should be taken in moderation. The diet should be plain and nutritious. Alcohol should be forbidden absolutely. Smoking may be permitted in moderation, provided there is no lesion of the buccal mucous membrane.

Marriage should be postponed until two years after the disease was contracted, and should only be permitted then if no symptoms have existed for at least six months, and provided adequate treatment has been adopted. If marriage takes place before this date, the wife should have a mild mercurial course as soon as conception has taken place.

Local treatment.—The primary lesion should be cleansed in warm water at least once a day, and then dusted over with orthoform. A piece of lint should be laid over the sore and kept in place by plaster strips or other contrivance. If there is any delay in healing, the sore may be touched from time to time by liq. hydrarg. pernitrat. If there is any difficulty in keeping the sore clean in this way, lotio nigra should be used frequently and calomel dusted on. If much pain is present, tr. opii 1 dr. may be added to 1 oz. of the lotion. If sloughing or *phagedæna* occur, the affected part should be kept in hot boracic solution for some hours at a time and the process frequently repeated. Between the immersions a lotion containing fe. tart. 10 to 20 gr. to 1 oz. of water should be applied, and strict cleanliness observed.

Medical treatment.—*Mercury.*—The secret of success with this drug is, that it should be given in small doses over long periods of time and that salivation should be avoided. It should always be given in the primary and

secondary stages. It should also be given in the tertiary stage in addition to iodides, if adequate mercurial treatment has not been adopted in the earlier stages or if there are lesions in the nervous system. Whatever method of administration is adopted, the condition of the mouth should be closely watched and the patient's weight ascertained under the same conditions each week. *The mouth.*—Before mercury is given, any decayed teeth present should be attended to by the dentist and all tartar removed. The teeth should be thoroughly washed after each meal with a reliable tooth-powder, and a 20 per cent. solution of listerine should be used frequently to rinse the mouth clean. If *salivation* or sponginess occur, the dose of mercury should be diminished, or if necessary the drug omitted for a short time. In addition, pot. chlorat. 10 to 15 gr., glycerin. boracis $\frac{1}{2}$ dr., aq. rosæ ad 1 oz. should be used frequently as a gargle, and a tablespoonful swallowed after meals thrice daily. So long as the normal weight is retained the mercury can be persevered with, but if there is loss of weight, the dose should be reduced. If the loss of weight continues, the drug should be omitted for a time. *Albumin* in the urine calls for smaller doses under careful supervision. *Diarrhœa* or *gastritis* calls for a short interruption of the treatment.

Methods of administration.—1. *Administration by the mouth.*—This method is of most general service. It is, however, slow, and sometimes uncertain; therefore, in cases in which a rapid effect is required—as, for example, in cases which have been neglected or in which acute brain-symptoms are present—inunction or injection should be adopted as the method of administration. In some cases, mercury, when administered by the mouth, gives rise to dyspepsia or diarrhœa, which is not checked by the opium usually given with the drug. In such cases injection or inunction methods should be used. Attention to the bowels is necessary; it is important that a daily action should be secured. A convenient form of prescription when mercury

is given by the mouth is hydrarg. c. creta 1 gr., pulv. opii $\frac{1}{6}$, pulv. piper. nig. 1 gr. as a pill four times a day after food. After a few months' treatment, fe. sulphas 1 gr. should be substituted for the opium. If constipation occurs the iron should be omitted.

2. *Treatment by inunction.*—For an adult 1 dr. of ung. hydrargyri should be rubbed into the skin by a skilled rubber once a day for twenty minutes. The region of application should be changed each day, and hairy regions should be avoided. An average course of treatment takes one month, but the actual duration must depend on the patient's reaction. As a rule, a course is required twice annually for three years. Each course should be followed by a rest of at least three months. This method may be prescribed when the administration by the mouth fails. It is, however, somewhat uncleanly, and therefore is best carried out at a special place like Aix-la-Chapelle or Harrogate. It should not be used in the presence of a general pustular syphilide.

3. *Treatment by intramuscular injection.*—This method of administration is useful in severe and intractable cases in syphilitic iritis, and in marked syphilis of the nervous system. Various preparations are used. Perhaps the most satisfactory is a dose of $\frac{3}{4}$ gr. calomel in 17 m. of olive oil once a week for about three to four months at a time. If this gives rise to much pain, 10 m. of the following may be given once a week: Hydrarg. perchlorid. 92 gr., ammon. chlorid. 16 gr., aq. dest. ad 2 oz. The injection should be made with aseptic precautions at a point which is the centre of a line drawn from the anterior superior spine of the ilium to the upper end of the intergluteal fold. If a piece of ice is pressed against this point before the needle is introduced, little pain is felt.

4. *Treatment by intravenous injection* is sometimes used when the symptoms are urgent, 15 to 20 minims of a 1 per cent. solution of cyanide of mercury being injected,

under strict aseptic precautions, into the median basilic vein once a week.

Iodides.—Sodium iodide is less depressing than potassium iodide. Iodides should always be given in the tertiary stage. They should also be given in the secondary stage if there is much periosteal pain, if the ulceration of the throat does not readily yield to mercury, or if there is continuous high fever. They should also be given if cerebral affections, or other symptoms associated with the tertiary stage, make their appearance at an unusually early period. The iodides should be given in doses of 5 gr., which should be rapidly increased to 15 gr. or 20 gr. three times a day. If irritation follows the use of small doses, the dose should be doubled. If improvement is slow, the dose should be increased. Iodides should always be given with large quantities of water.

Routine treatment of a case of syphilis.—It is important to remember that each case must be treated on its merits, careful watch being kept on the condition of the gums and weight, and the dose of mercury being altered in accordance with these indications. As a general rule, however, hydrarg. c. cret. 1 gr., pulv. opii $\frac{1}{2}$ gr., pulv. piper nig. 1 gr. may be given as a pill four times daily after food for four months. Care must be taken to see that the bowels act well. If diarrhoea occurs, the dose of mercury must be diminished. The opium may be replaced by fe. sulph. 1 gr. if at the end of four months constipation is troublesome. Mercury should still be given for another five months if possible; making nine months in all. Two or three months' freedom from mercury should follow. Liq. hydrarg. perchloridi 80 m., sodii iodid. 5 gr., liq. sarsæ co. (con.) 2 dr., aq. destil. ad 1 oz. may then be taken with a tumblerful of water twenty minutes after meals thrice daily for a period of six weeks. The dose of iodide should be increased to 15 or 20 gr. (see above). If very large doses of iodide are required, the mercury should

be omitted for a time, and liq. arsenical. 8 m. given in its stead. At intervals of two months further courses of this iodide-and-mercury mixture may be prescribed for six weeks at a time until two years' treatment have been completed after the appearance of the sore. An occasional course of iodides without mercury may be given during the third year, or longer if any syphilitic manifestations continue to make their appearance.

In the intervals between the courses quinine in 1 gr. doses thrice daily is of service. This drug is also useful in the late secondary stage. In thin subjects cod-liver oil may be given at night-time.

Special symptoms.—*Skin-eruptions* in the early secondary stage rarely require special treatment. If the face is affected, ung. hydrarg. ammon. 20 gr. to 1 oz. may be rubbed in locally. If the face eruption is very severe, a calomel vapour-bath may be of service. Later lesions such as *serpiginous ulceration* or *plantar psoriasis* are best treated by an application of ung. hydrarg. ammon., and, if necessary, orthoform, or by inunctions of oleate of mercury (5 to 10 per cent.).

Condylomata must be kept dry and dusted with equal parts of calomel and starch.

Mucous patches on the throat, mouth, the vulva or anus, should be painted over with hydrarg. perchlor. 4 gr. to the ounce. If they do not heal, they should be touched with acid pernitrate of mercury solution.

CONGENITAL SYPHILIS.— $\frac{1}{2}$ gr. grey powder should be given to an infant four months old thrice daily for a week and then once daily for many weeks. The use of this drug should be continued for a year with occasional intermissions. If the grey powder does not agree, ung. hydrarg. should be smeared on a flannel roller wound round the abdomen. The same bandage should be used for several days at a time. Cod-liver oil may also be smeared on the bandage, or given internally. If the milk of the mother

is used, as it well may be in many cases, she should have a *mild* mercurial course at the same time.

TABES DORSALIS. See LOCOMOTOR ATAXY.

TABES MESENTERICA. See MESENTERIC-GLAND DISEASE.

TACHYCARDIA. See HEART, DISEASES OF, p. 155.

TAPE-WORM.

Treatment consists in emptying the bowel, administering male fern, and then purging. The best results are obtained if this is carried out as follows :

(1) The patient is kept in bed. (2) For three days the diet should consist of beef-tea 2 pints, somatose 2 dr., two rusks, port wine 4 oz. (3) During these days cascara sagrada 2 gr. should be given thrice daily. (4) At 5 A.M. on the fourth day mist. sennæ co. 1 oz. should be given ; at 9 A.M., 9.15, 9.30, 9.45, 15 m. ext. of male fern in capsule should be given ; and at 11 A.M. mist. sennæ co. 1 oz. If by 1 P.M. the head of the worm is not found (it is best found by the motion being passed into a pan covered with black crape), 15 m. male fern in capsules should again be given every quarter of an hour for four doses, and followed in an hour by the purgative. If the head is still missing, a third course of male fern should be given. If after this the head has not been found, it is advisable to defer further treatment for three months. If segments appear after this interval, the course of treatment must be again resumed.

TETANUS.

The patient should be kept in bed in a darkened room. Every possible precaution to avoid noise should be taken, as noises increase the frequency of the convulsions. The patient should not be moved more than can be helped, as movement brings on convulsions. He should wear a light flannel night-dress, and, if sweating is profuse, must be carefully dried from time to time. The bed-clothes should be light.

The *wound* should be treated thoroughly on anti-septic principles. As a rule, amputation produces no benefit.

Diet.—Milk and fluids should be given in moderation. In mild cases the patient may be fed by the mouth, a tooth being extracted if necessary. In severe cases, nasal or rectal feeding must be employed. Food should be given in small quantities at a time, and great care exercised, as there is a tendency for the food to get into the larynx, owing to the spasms. In very severe cases, chloroform-inhalations should be given to facilitate the introduction of food into the stomach.

The *bladder* may have to be emptied by catheter. The *bowels* should be moved by calomel 5 gr. at the outset, and subsequently by enemata.

The *spasms* are best met by complete rest and avoidance of noise. The best drug to give is *chloral*, which has sometimes to be given in poisonous doses. Its effect on the heart must be carefully watched. As a general rule, chloral 25 gr. and potassium bromide 30 gr. should be given to an adult of average physique by the rectum as soon as possible, and then 15 gr. of each drug every four to six hours. Gentle rubbing of the constricted muscles, especially the abdominal muscles, with oil sometimes helps to relieve the frequency of the spasms. In severe cases in which the chloral and bromide mixture does not produce much effect, it may be necessary to keep the patient lightly under the influence of *chloroform* from time to time.

Treatment by antitoxin.—It is doubtful whether tetanus antitoxin has much effect in severe cases beyond affording some relief from the frequency of the spasms. It should, however, be given in all cases as soon as possible. The dose depends upon the particular brand used, but full directions are issued with the serum. The antitoxin should

be injected along the motor nerves of the affected limb, or into the arachnoid sheath of the spinal cord.

Prophylactic treatment.—In all cases in which the character of a wound is such that tetanus may be expected to ensue, tetanus antitoxin should be given every other day for three doses, the dose depending upon the particular brand selected.

TETANY.

From dilatation of the stomach.—Tetany in this condition is often a somewhat serious symptom. The patient should be treated on the lines indicated under Stomach, Dilatation of, with rest, judicious feeding, and lavage. Salol 10 gr. may be given thrice daily. The bowels should be made to act freely by means of calomel and Epsom salts. The lower bowel should be freely irrigated with normal saline solution (1 dr. to 1 pint). Protection from cold and fatigue are essential. Warm baths help elimination and tend to relieve the spasms. In severe cases, chloral 20 gr., pot. bromid. 80 gr. should be given at night by the rectum. In more chronic cases, a combination of valerian and a bromide, such as ol. valerian. 2 m., ethyl. bromid. 8 m., in capsule may be given twice a day.

Where relief does not follow the above treatment, the question of gastro-jejunostomy should be considered.

In rickets.—Careful diet (*see* INFANT-FEEDING and RICKETS) is essential, the food consisting of milk, with sodium citrate 15 gr. to each 10 oz. of milk or peptonised barley-water, albumin-water, or whey. The stomach should be washed out daily. Cod-liver oil should be given in $\frac{1}{2}$ to 1 dr. doses twice daily.

After removal of the thyroid gland.—Two grains of the thyroid extract should be given once or twice daily.

In young girls at the age of puberty.—In this form, tetany is best treated by attention to diet, purgation, and tonics. If this fails, more energetic treatment on the lines detailed above should be employed.

During pregnancy.—Attention to the diet, gentle purgation, and tonics are necessary. If the condition is serious, the question of premature delivery should be considered, as after delivery this symptom usually disappears.

During lactation.—Immediate weaning, attention to diet, gentle purgation, and tonic treatment are required.

THREAD-WORMS.

In this condition re-infection is constantly occurring; great care should therefore be taken to keep the parts about the anus absolutely clean. Constant changes of clean linen are essential. Uncooked vegetables and fruit should be forbidden, and the water drunk must be pure and free from ova.

The itching may usually be relieved by the use of the B.P. carbolic-acid ointment.

The lower bowel should be cleared out, and then the colon should be thoroughly irrigated with large quantities of salt and water (1 oz. to 1 pint). This procedure should be followed every second night until the worms cease to appear. As a rule, three weeks' treatment is sufficient.

An occasional purge with scammon. 3 gr., ext. bellad. $\frac{1}{2}$ gr., oleo-resin. zingib. $\frac{1}{2}$ gr., hydrarg. subchlor. 1 gr. is often of service in obstinate cases. Iron and arsenic should be prescribed for a month or two.

THROAT, SORE. *See* TONSILLITIS.

THROMBOSIS. *See* PHLEBITIS.

THROMBOSIS, CEREBRAL. *See* APOPLEXY.

THRUSH. *See also* STOMATITIS.

PARASITIC.—Strict attention should be paid to the cleanliness of the mouth, rubber nipples, bottles, cloths, &c. The rubber nipples should be kept in a 5 per cent. boracic-acid solution. The mouth should be carefully cleansed after each feeding by means of swabbing with glycerin. boracis, and a 1 per cent. solution of formalin should be applied twice daily. Sometimes the rubber nipple keeps

up the condition ; in such cases the food should be given through the nasal tube for two or three days.

In cases following severe disease, food should be given frequently, and should be nutritious. Twenty drops of brandy may be given every three or four hours ; and potassii chlorat. 5 gr., tr. cinchon. 5 m., and acid. hydrochlor. dil. 5 m., syrup. mori 1 dr., aq. ad 4 dr., every four hours.

TINEA. *See* RINGWORM.

TINEA TARSI. *See* BLEPHARITIS.

TINEA VERSICOLOR. *See* PITYRIASIS VERSICOLOR.

TINNITUS. *See also* MÉNIÈRE'S DISEASE.

The cause, if possible, must be treated. Thus wax or foreign bodies should be removed from the ear if present ; throat-affections must receive attention, especially Eustachian-tube obstruction ; alterations in blood-pressure require treatment. Reflex causes of tinnitus, such as carious teeth, anæmia, malnutrition, cardiac, gastric, and hepatic disease, must be sought for, and, if present, receive appropriate treatment. In all cases the patient should be assured that the tinnitus does not indicate disease of the brain. In those cases in which no cause can be found after patient investigation, the patient should avoid fatigue, and lead a healthy life. In addition, a blister should be applied to the mastoid process, and acid. hydrobrom. dil. 30 m., quin. sulph. 1 gr., syrup. aurant. 30 m., aq. dest. ad 1 oz., given thrice daily fifteen minutes before meals.

TONGUE, INFLAMMATION OF. *See* GLOSSITIS.
TONGUE, ULCERS OF.

DENTAL.—In severe or chronic cases the neighbouring tooth should be removed. If the ulcer is indurated, it should be excised, and a portion examined microscopically. In all cases the mouth should be kept clean, and be frequently washed out with listerine 20 per cent. The ulcer should be touched with solid silver nitrate, and painted daily with fresh horse-serum. If there is much pain on

eating, the ulcer may be painted with a 5 per cent. solution of cocaine before meals. In addition, the bowels should be thoroughly opened.

DYSPEPTIC.—The diet should be regulated and the bowels freely opened. The mouth should be kept clean, and frequently washed out with listerine 20 per cent. The ulcer should be touched with solid silver nitrate, and painted daily with fresh horse-serum. If there is much pain on eating, the ulcer may be painted with a 5 per cent. solution of cocaine before meals.

SYPHILITIC.—General antisyphilitic treatment is essential (*see* SYPHILIS). *Mucous patches* should be carefully dried and painted with 5 per cent. chromic-acid solution. *Ulcers* should be touched with the acid. liq. hydrargyri nitratis.

TUBERCULOUS.—General antituberculous treatment is essential (*see* TUBERCULOSIS). In addition, the ulcers should be painted with 20 per cent. lactic-acid solution. If there is much pain on eating, the ulcer should be painted with a 5 per cent. solution of cocaine before meals. If the ulcer is chronic, or does not improve under treatment, it should be scraped or excised.

TONSILLITIS.

ACUTE FOLLICULAR TONSILLITIS.—The possibility of diphtheria, scarlet fever, or rheumatic fever should be excluded.

The patient must be kept in bed if the fever is high. A fluid nutritious diet should be prescribed. Calomel 5 gr. should be given at the outset to an adult, and followed by the free use of Epsom salts. Free chlorine is the best local and internal remedy; and pot. chlorat. 10 gr., acid. hydrochlor. dil. 10 m., tr. cinchon. 80 m., glycerin. 80 m., aq. dest. ad 1 oz. may be given every four to six hours at first, whilst pot. chlor. 15 gr., glycerin. boracis 80 m., aq. rosæ ad 1 oz. is used frequently as a gargle. *In influenzal and rheumatic cases* sodii salicyl. natural. 20 gr., sod. bromid.

5 gr., tr. aurant. 80 m., inf. aurant. ad 1 oz. every hour for three doses, and then every six hours, may be substituted for the chlorine mixture. *For the initial pains* antipyrin 10 gr. may be given for a few doses. *In septic cases* free stimulation is necessary.

In convalescence iron and quinine should be prescribed.

Local measures.—The throat should be frequently steamed by means of hot water in a basin or jug; hot fomentations should be applied to the neck (sometimes cold applications give more relief), and ice sucked in the intervals between steaming. In some cases the pain is much relieved by painting the tonsils with a 1 in 10 solution of carbolic acid.

QUINSY.—This complication should be treated on the above lines—purgation, salicylates internally, and a potassium-chlorate gargle. If there is progressive swelling of the soft parts, in spite of treatment, free scarification with a bistoury, protected by strips of plaster except at its point, should be employed. If an *abscess* forms, it should be opened at once. Morphia should not be given in this condition, owing to the possible danger of suffocation.

CHRONIC TONSILLITIS.—In many cases insistence on nose-breathing, together with the application to the tonsils, night and morning, of iod. 6 to 12 gr., pot. iodid. 12 to 24 gr., ol. menth. pip. $\frac{1}{2}$ m. glycerin. ad 1 oz., and attention to the general health, are all that is required. In more marked cases it is necessary to remove the tonsils by the guillotine or by dissection.

TOOTHACHE.

In ordinary cases the gums may be painted in the neighbourhood of the affected tooth with equal parts of the tincture of aconite (Fleming's) and the tincture of iodine. If there is a cavity, a small piece of cotton-wool, soaked in oil of cloves, together with cocaine alkaloid 1 gr. in pure carbolic acid 1 dr., or creosote, should be placed in the cavity and then covered with a piece of cotton-wool soaked

in an alcoholic solution of gum-mastic. The latter must not be allowed to reach the pulp and should be renewed in twenty-four hours. If pain is very severe and no dentist available, morphia $\frac{1}{6}$ gr. may be given.

In periodontitis and dental abscess.—In many cases incision of the abscess relieves the patient and may save the tooth. Extraction of the tooth, however, is the surest way of relieving the pain. Hot fomentations should never be applied to the cheek, but hot figs may be applied to the affected gum, or the mouth frequently rinsed out with hot water.

TRYPANOSOMIASIS. See SLEEPING-SICKNESS.
TUBERCULOSIS.

In all forms of tuberculosis *the essentials of treatment* are the same : (1) a continuous supply of fresh air, abundance of good nourishing food, and avoidance of all unhygienic conditions ; in other words, every effort must be made to put the defensive forces of the body in as good a condition as possible. (2) Complete rest, to limit auto-inoculation as far as possible, until the temperature has been normal for ten days. (3) When movement is permitted, careful supervision of the amount of exercise, so that excessive auto-inoculation is prevented. (4) The administration of tuberculin in order to increase the immunising capacity of the serum.

This section is divided into—(1) Glandular Tuberculosis ; (2) Tuberculosis of Joints ; (3) Tuberculous Peritonitis ; (4) Pulmonary Tuberculosis (Consumption).

1. GLANDULAR TUBERCULOSIS.—In all cases careful search should be made for any cause of *local irritation* such as bad teeth, enlarged tonsils, pediculi, etc. If any local cause of irritation is present it must be removed. An open-air life should be insisted upon. The air of the East coast, and especially of the neighbourhood of Margate, is of service in intractable cases. An abundance of good nourishing food, with an excess of fatty foods, is

essential. In early cases these measures, when combined with the administration of small doses of Koch's tuberculin (TR), give brilliant results. The *tuberculin* may be given by the mouth, together with 2 oz. of milk, three hours after food. Whilst tuberculin is being given the temperature should be taken at least three times a day. In a child of five the initial dose of tuberculin may be $\frac{1}{40000}$ mgm., and subsequent doses may be given at intervals of two to three days. The amount of the dose may be cautiously increased, but great care is required; if a rise of temperature to 99° F. from normal (or an increase in existing fever) occur after a dose of tuberculin, the dose is too large, and the next one must be smaller. This smaller dose should not be increased for a week or two. After this period, if progress is satisfactory, it may be necessary to give a slightly larger dose; but if this produces a rise of temperature, a return to the smaller doses should be made. (See VACCINE THERAPY.) The use of tuberculin should be continued for a month or two after the glands have disappeared or become fibrous.

When suppuration is present, a small incision should be made and the pus evacuated by means of a Volkmann's spoon if possible. The pus should be collected and examined. If secondary infection is present, the micro-organisms should be grown and the appropriate vaccines prepared and given (see VACCINE THERAPY).

When removal of the glands is necessary, it is advisable to prescribe a preliminary course of tuberculin, if possible before the operation, as the wound will then heal more satisfactorily. A few days after the removal of the glands, treatment with tuberculin may be resumed.

2. TUBERCULOUS DISEASE OF JOINTS may be treated on the same lines as tuberculous glands; efficient surgical measures to obtain rest of the joint being taken at the same time.

3. TUBERCULOUS PERITONITIS. See PERITONITIS, TUBERCULOUS.

4. PULMONARY TUBERCULOSIS (Phthisis, Consumption).—For the purposes of treatment, pulmonary consumption may be divided into three classes: (1) Early cases with limited disease and a fairly normal and regular temperature; (2) Chronic cases with fibrosis and more extensive disease and occasional attacks of fever; (3) Acute febrile cases. In no case can any opinion be given as to the prognosis until the patient's reaction to treatment has been ascertained after a month's, or it may be two months' trial, but if the case is detected early, and efficient treatment properly carried out, permanent arrest of the disease can be obtained in the great majority of instances. In all cases *the patient should be told the exact condition of affairs*, for improvement depends chiefly on the loyal co-operation of the patient with the doctor; and unless the patient clearly understands his condition and the reason for each detail of the treatment, he is apt to be careless and to chafe against the irksomeness which must be associated with any line of treatment the essence of which is a continuous and conscientious application to detail over a prolonged period of time. In the majority of cases it is comparatively easy to obtain arrest of disease in a few months, provided—(1) The disease is detected in a sufficiently early stage; (2) the patient's resistance is good; (3) the patient loyally carries out the directions given. It must not be thought, as is too often the case, that when the disease is arrested there is no fear of relapse. It is absolutely essential that the *main* lines of treatment should be followed for at least two years, and in many cases for longer periods. It is particularly necessary that *fatigue should be avoided*. Fatigue not only lowers the defensive forces of the body, but causes a greater absorption of bacilli and their products from the diseased focus, owing to the freer circulation induced by the exercise which has caused fatigue. In this way bacilli in some cases are carried to other parts of the lungs and body and so set up fresh foci of disease which not uncommonly

take the form of pleurisy. Whether bacilli are carried to other parts in this way or not, in all cases of fatigue following over-exertion an unduly large dose of the patient's own tuberculin is absorbed by the more freely circulating lymph, and exactly the same sequence of events follows as occurs when an overdose of Koch's tuberculin is given, much to the detriment of the patient. This effect is shown by a heightened temperature, general lassitude, frontal headache, distaste for food, and pains in the limbs.

Early cases with limited disease.—As a general rule, a patient in the early stages of consumption is well advised if he goes to an *efficient sanatorium* for a few months, for he is then placed under the best conditions for the arrest of the disease, and has the opportunity of learning how to live. Care must be taken to have recent information that the sanatorium decided upon is efficient, for many sanatoriums are in reality merely hotels run for profit and without due regard to the medical requirements of the patients. If it is impossible for the patient to go to a sanatorium, he may be treated at home, but in the great majority of instances he must devote his whole time to the recovery of his health for at least three months. The essentials of treatment are—(1) A continuous supply of fresh air; (2) an abundance of easily digested food with excess of fatty foods; (3) systematic supervision of rest and exercise; (4) the careful administration of tuberculin (in the majority of instances); (5) the treatment of symptoms.

In dealing with these headings in detail, reference is made chiefly to the conditions necessary for treatment in the patient's own home, as these are the same whether he is unable to go to a sanatorium, or whether he has had the preliminary advantage of a sanatorium education. An outline of the daily routine is given on page 807.

Treatment at home.—*A continuous supply of fresh air* is essential. Naturally the patient should enjoy the best *climatic conditions* he can afford. A bracing climate with a dry soil at a slight elevation above the sea-level is the best climate. A low-lying damp locality should be avoided. Climate, however, is of secondary importance, and it is possible to arrest the disease in most places, provided there is not an undue degree of dampness. Wherever the patient is, he should live *continuously* under open-air conditions. At the same time he should have protection against stormy winds, rain, and an unduly hot sun. In many instances this is best arranged by the patient using a simple *wooden shelter* in the open for his meals and for sleeping-purposes. The sides of this shelter should be capable of being opened so that in suitable weather the patient can be exposed to the fresh air on all sides. The floor of the shelter should be raised a foot or so above the ground. If no shelter is available, the patient should have the windows of any room he occupies always open except when he dresses. Every consumptive should have a bed-room to himself. The *room* should be freely open to the sunshine. The room should not contain articles or fabrics which collect dust. The less hangings and furniture the better. Carpets are unnecessary, and may be replaced by linoleum. Scrupulous cleanliness of the room should be maintained by means of wet cloths rather than dusters and brooms. Meals may be taken indoors provided the windows of the room are kept open, but the patient should spend as much time as possible out of doors, and when indoors should not be in a room with many people. The only *artificial forms of lighting* permissible are electric light or candles. The room may be warmed by open coal-fires or preferably by radiators, but in many cases patients do not require any artificial heating arrangements. *Clothes* should be warm and sufficient; excess of clothing should be avoided, and naturally less clothing should be worn whilst exercise is being taken. At

the same time sufficient clothing should be worn for the patient to feel comfortable. Absorbent material such as a cellular mixture of silk and cotton may be worn next the skin. Women should avoid corsets.

Disinfection.—All sputum should be collected in suitable flasks or sputum-pots, mixed with sawdust, and burnt. The flasks and sputum-pots should be sterilised with boiling water and washed out with 1 in 20 carbolic acid; lysol should be placed in both when in use. Bed-clothes &c. which have been exposed to infection should be placed in water to which soda has been added, and then boiled for half an hour in water (*see* article DISINFECTION).

Diet. (*See also* ZOMOTHERAPY, under Acute Febrile Cases, p. 308.)—The patient must be persuaded to eat sufficient food to replace not only the ordinary tissue-waste and the extraordinary waste due to the disease, but also to put on weight gradually until the weight is something more than the previous maximum weight. Food must be taken whether the appetite is good or not. Three meals are sufficient. Abundance, but not excess, of ordinary food should be prescribed, together with an excess of fatty foods. Thus bread should be plentifully spread with butter; sauces should contain considerable quantities of fat; milk, cream, fat, potatoes, and milky puddings should be ordered. The food should be varied and daintily served.

Breakfast at 8 A.M. may consist of tea or coffee, a large quantity of bread (not new) and butter, eggs, fish, bacon, ham, tongue, or sausage, together with one pint of milk.

Dinner at 1 P.M. should be the principal meal, and may consist of two hot courses of meat, or one of fish and one of meat (4 to 6 oz. of each), good potatoes, green vegetables, or rice, and fat-containing sauces; pastry or some farinaceous pudding or ice-cream and fruit, together with a pint of milk, and, if the patient wishes it, a small cup of coffee.

Supper at 7 P.M. may consist of one course of hot meat with potatoes and green vegetables, and one course of cold

meat or game, with an abundance of bread, butter, and cheese, and a pint of milk. As the weight increases, the quantity of milk and fatty foods should be gradually diminished, for if this is not done too much fat is laid on, and the patient becomes short of breath on exertion. If *dyspepsia* is present, it must be treated on ordinary lines. Especial attention should be paid to the teeth. *Alcohol* is not necessary, but small quantities of beer or red wine may be permitted at dinner and supper in afebrile cases.

Rest and exercise.—The simplest way of mastering the essentials of these is to regard rest as being the best means of limiting the absorption of toxin, and assisting the defensive forces of the body, such as the phagocytes and body-fluids, to recuperate; and exercise as representing a dose of the patient's own tuberculin. With regard to the latter, it may be said that a patient cures himself by small progressively increasing doses of his own tuberculin. If auto-inoculation in excess is present, continual fever is also present, and rest is imperative. When auto-inoculation has become limited, and the temperature in consequence normal, gentle exercise may be permitted. Exertion causes absorption of the patient's own tuberculin. If the dose of the patient's own tuberculin is a proper one, the immunising capacity of the patient's serum is increased. On the other hand, too much exertion produces too great absorption of the tuberculin—the dose is too great—and so produces fever and extension of the disease. Finally, a definite amount of exercise—that is a definite dose of the patient's tuberculin—which at first caused a satisfactory response, after a time fails to call forth a response, and then the amount of exercise has to be gradually increased.

In afebrile cases at least *one hour's complete rest before dinner and supper* is imperative. Nothing aids the digestive capacity so much as this measure. The rest should be taken on a sofa or long chair alone, in the open air or by an open window, and during the hour's rest nothing involving

mental effort should be permitted. *The amount of exercise* must depend on the patient's condition. *Walking-exercise* is the best form, but if it causes dyspnoea, dyspepsia, marked increase in pulse-rate, continued loss of weight, increase of cough, or hæmoptysis, it does harm and is contra-indicated. It is well to commence with a half-mile walk in the morning, and by careful steps to increase this in two or three months up to as much as ten or more miles a day. After a week's trial of the morning walk, an afternoon walk of shorter duration should also be prescribed in most cases. The walking-exercise should be slow, not more than three miles an hour, and preferably uphill at its commencement, care being taken that the return is downhill, so that undue effort is not required from the patient at the end of his walk. One guide as to whether the amount of exercise is too great is the temperature, which should be taken before rising and ten minutes after going to bed at night, and in addition at 6 P.M. If the temperature is above 99° F. in men, or 99·6° F. (*see Acute Febrile Consumption* below) in women, half an hour after exercise the exercise has been too great. The patient should then rest all day until the temperature has been constantly below 99° F. for three days, when a recommencement of half the previous amount of exercise may be permitted.

After a month or six weeks' continual improvement, *other exercises* may be permitted, with the same careful supervision, and the amount gradually increased—*e.g.* picking up and carrying fir-cones in a half-basket (11 lb.), then a full basket (16 lb.); carrying a half-basket of stones (21 lb.), and then a basket of stones (up to 33 lb.); rolling grass with a small roller (sixteen men pull a roller of 15 cwt.); digging broken ground; mowing grass with lawn-mower. Other occupations, corresponding to the above in the amount of exertion and in the amount of tuberculin absorbed, may easily be devised; but the evils of

over-exertion, sudden effort, and fatigue must be constantly borne in mind.

Daily and weekly routine.—The patient should rise at 7.30 A.M., have a shower-bath at a temperature agreeable to himself, and avoid excessive effort in drying. Breakfast at 8. At 8.30 he starts on his morning walk, and when this is half over, rests in open air till it is time to return home. At 11.45 he returns from his walk and rests on a sofa till dinner at 1 P.M. At 2.45 he starts for his afternoon walk, and when this is half over, rests in the open air till it is time to return home. At 5 or thereabouts he reaches home, and from 6 to 7 P.M. rests on a sofa. At 9 he retires to his own room, being in bed by 9.30.

The *weight* should be taken once a week, always in the same clothes, at the same hour, and on a reliable machine.

It is not necessary, as a rule, to *examine the chest* more than once a fortnight or the *sputum* more than once a month.

Amusements may be permitted which do not excite sudden or undue effort. The particular forms allowed must depend on the particular case, but the principles underlying amusements are the same as those underlying exercise (*see above*). Gentle playing of the piano, or even a game of cards, may cause fever and auto-inoculation. At the same time, although anything which produces fever must be forbidden, the patient should be protected from introspection by every means in our power.

Smoking may be permitted in the open air so long as it does not produce coughing, and is not indulged in to excess.

After the disease has become arrested, a change of climate, such as the high Alps, is of great value, provided the treatment in all its details continues to be carried out conscientiously by the patient.

As a rule, when fever has been absent for four or more months the patient may resume his occupation, provided that he continues to (1) live under open-air conditions as

much as possible, avoiding theatres, churches, &c., for the time; (2) rests an hour before his meals; (3) takes sufficient food; (4) avoids over-exertion and fatigue.

CHRONIC CASES WITH FIBROSIS AND MORE EXTENSIVE DISEASE.—If fever is absent, these cases should be treated on the lines detailed above; if fever is present they should be treated on the lines mentioned under Acute Febrile Cases. In many instances treatment in a sanatorium gives the best results, especially if the patient, when not under supervision, is careless and does not appreciate the necessity of continuous treatment. In advanced cases, with much expectoration, an equable, rather moist climate, such as that of Torquay or Fal-mouth, is of value. Such cases should not be sent to higher altitudes than 1,000 to 1,500 feet.

ACUTE FEBRILE CASES.—In these *absolute rest in bed* is imperative, and the patient should be treated with the same care as to absence of movement as a patient suffering from typhoid fever. *Open-air conditions* should be observed.

Diet.—Solid food should be taken if possible, as improvement is much more rapid in that case. If solid food cannot be taken in the form of ordinary meals, it should be given with milk in smaller quantities and at shorter intervals. We may have to rely, however, at first on milk alone or with barley-water, peptonised milk, koumiss, such preparations as somatose, plasmon, sanato-gen, protene, or upon zomotherapy. In many cases *zomotherapy* is of value either by itself or as an adjunct to other forms of diet. This consists in the use of *fresh raw meat*. We may give (1) pounded raw meat, seasoned with salt and mixed with a little cream, and either served in this state or very slightly warmed. Half a pound may be given twice or thrice daily. (2) Raw meat soup; $\frac{1}{2}$ lb. of finely minced beef or mutton should be mixed with sufficient milk to produce a paste, and then mixed, just before serving, with half a pint of

milk at 150° F. (3) Beef-juice such as the Carnine Lefranc preparation.

When the temperature has been normal for ten days, a very careful return to exertion may be allowed. At first the patient should have extra pillows; then be allowed to sit up in bed, then to lie on a sofa, then to walk in the room, and finally to take outdoor exercise; but if fever results an immediate return to absolute rest is necessary.

The administration of Koch's tuberculin (see VACCINE THERAPY).—Probably the majority of patients suffering from early consumption are benefited by the careful administration of tuberculin (TR). It may be given by the mouth. *In afebrile cases* the initial dose for an adult may be $\frac{1}{5000}$ mgm. to $\frac{1}{2000}$ mgm. *In febrile cases* it may be necessary to commence with $\frac{1}{50000}$ mgm. to $\frac{1}{20000}$ mgm., but in some it is permissible to commence with $\frac{1}{10000}$ mgm. or even larger doses. Any dose which is followed by a rise of temperature is too great, and the next one should be smaller. In febrile cases it is best to give the chosen dose at forty-eight to seventy-two hours' interval, and, if necessary, to increase the dose *gradually* until the temperature is lowered. When this occurs the dose should not be increased for some time. When much destruction of tissue occurs, the addition of 10 c.c. fresh horse-serum to each dose is of service.

Treatment of symptoms.—The treatment of special symptoms will be found under their appropriate headings. In most cases the symptoms disappear when adequate treatment, on the lines indicated in the preceding paragraphs, is adopted. A few words may be added. *Anæmia and debility* may be met by Kepler's cod-liver oil and malt, 2 dr. after meals twice a day; or by a course of glycerophosphates or by liq. arsenic. 8 m. after meals with quinin. sulph. 1 gr. before meals. *Cough* should receive attention, and its cause should be ascertained before medicines are prescribed. As far as possible, mixtures for this symptom should be avoided. *Excessive cough* should be treated, if it is independent of

the necessity of expectoration and is not relieved by open-air conditions, by anodynes, especially by codein. $\frac{1}{4}$ to 1 gr., or by liq. morphin. tartr. 8 m., acid. hydrocyan. dil. 1 m., oxymel. scillæ 1 dr. occasionally. If the cough depends on the *difficulty in raising the expectoration*, sodii bicarbon. 15 gr., sod. iod. 8 gr., vin. ipecac. 8 m., aq. cinnamon. ad 1 oz. may be given thrice daily. If this is not successful, ammonii chlorid. 10 gr. should replace the iodide, and ext. glycyrrh. liq. 20 m. should be added to the mixture. The *morning cough* is often relieved by a tumblerful of hot milk with sodii bicarbon. 10 gr. The addition to this of two teaspoonfuls of rum is sometimes of value. If *expectoration is excessive*, terpene hydrate 2 to 5 gr. may be given in pill form twice or thrice daily. In all cases the patient should endeavour to avoid coughing as much as possible, as every cough saved is so much rest to the lungs.

Dyspepsia should be treated on the usual lines. Mild cases, with want of appetite, are usually met by prescribing sodii bicarbon. 15 gr., acid. hydrocyan. dil. 8 m., inf. gent. co. ad 1 oz. fifteen minutes before meals, and creosote 1 m. in capsule after meals. *Pain* in the chest is usually due to pleurisy, and is best met by the application of equal parts of the tr. and lin. iodi, or, if severe, by adequate strapping of the affected side.

Night-sweating usually subsides under open-air conditions. If it persists, a pill containing ext. belladon. alcoholic. $\frac{1}{4}$ gr., agaricin $\frac{1}{4}$ gr. may be given at night for a time.

TYPHLITIS. See APPENDICITIS.

TYPHOID FEVER.

The *incubation period* is commonly about ten days; it may be as long as three weeks, or as short as five days.

The *essentials of treatment* are absolute rest, good nursing, a diet which does not cause distension, and prompt treatment of complications.

General treatment.—A patient should not, if it can be avoided, be moved any distance after a definite diagnosis of

typhoid fever has been made. The *room* should be well ventilated and kept at a temperature of 60° F. As little furniture and hangings as possible should be retained. The *bed* should be narrow and conveniently placed for nursing purposes. It may be protected from draughts by light screens. It is an advantage to have two beds in the room, so that the patient may be transferred in a draw-sheet every twelve hours from one bed to the other. The mattress should be firm, and the bed-clothing light. A cradle should be placed over the patient's abdomen to relieve the weight of the clothes. A draw-sheet should be placed under the patient, and underneath this a sheet of rubber.

The motions and urine must be passed without the patient getting up, and should be immediately disinfected (*see* DISINFECTION).

Diet.—It is important that the diet should be such that it does not cause distension or leave much undigested residue. In all cases of typhoid fever the tension of the abdomen should be closely examined daily. If there be any tendency to distension the diet must be modified, or, if necessary, only whey or albumin-water given. Further, the stools should be inspected daily, and if any undigested residue is present the diet must be modified.

As a rule, the best diet during the febrile stage is 2 to 3 pints of milk in twenty-four hours, the milk being diluted in the proportion of 3 parts to 1 part of water. Fifteen gr. of sodium citrate should be added to each 10 oz. of milk. The milk may be flavoured with tea, coffee, cocoa, chocolate, or allowed to stand on bread, &c., and then strained. Successive flavouring agents should be used if the patient's taste becomes irritable. Eggs should be avoided as being apt to set up diarrhoea. Custard, junket and milk, chicken or calf's foot jellies are useful variations. If milk is undigested or gives rise to distension, it should be peptonised; if this procedure fails, whey or albumin-water may wholly or in part replace the milk.

Patients do well on a purely whey diet for two to three weeks. Water may be allowed freely, provided that not more than 1 oz. is taken at a time. A little lemon-juice should be added to the water. Ice in any quantity tends to produce flatulence.

Beef-tea, meat-soups, and gravy are inadvisable, as they increase the tendency to flatulence.

When the temperature has been normal for a week or ten days, bread and milk may be permitted, then bread and butter, rice-pudding, pounded fish, then boiled fish, minced meat, &c., in succession. The nurse must see that the patient thoroughly masticates any solid food given him. It sometimes happens that the temperature persists for five or six weeks although all other symptoms have gone; in such cases the temperature is often due to exhaustion, and quickly drops on a judicious use of raw beef-juice and a more solid diet as in established convalescence. In some cases a patient may be permitted to have solid food at an earlier period. Such cases should be carefully selected; the patient must be in full possession of his senses, and must be warned of the danger of swallowing solid portions. He must chew the food thoroughly, and the undissolved portions (such as the fibre of meat) must not be swallowed, but spat out.

Alcohol should not be given as a rule, but if the pulse becomes more rapid and feeble it should be given freely. Its use should be suspended for a time if hæmorrhage occurs. An ounce or two of old brandy is useful when the temperature has become normal.

Medicinal treatment.—If the case is seen within the first week, a dose of 5 gr. of calomel should be given. A routine mixture containing acid. hydrochloric. dil. 15 m. in water 1 oz. may be given every eight hours. Otherwise treatment must be on symptomatic lines.

COMPLICATIONS.—*Abdominal tenderness* is best treated with a starch-and-opium (tr. opii 15 m.) enema.

Constipation.—It is inadvisable, except during the first few days and in established convalescence, to give any drug by the mouth which is likely to excite peristalsis. A soap-and-water enema or a glycerine suppository as occasion arises is usually sufficient to overcome this complication. If it is unsuccessful, a little beef-tea or soup may be added to the diet. If the motions are at all hard, 1 oz. of olive oil may be given three or four times a day.

Cystitis.—Urotropin 7 gr. should be given thrice daily. If during the illness the catheter has to be used, urotropin (10 gr. at night) should be given as a precaution.

Delirium.—This is often aggravated by complications, such as hæmorrhage, pneumonia, or even retention of urine. Absolute quiet is necessary. An ice-cap is of value. Drugs are not of much use, and we have to rely chiefly on large doses of alcohol and cold sponging.

Diarrhœa.—If there are more than five motions in twenty-four hours the diet should be altered, peptonised milk being first tried, and, if this fails, only whey or albumin-water being given. If the diarrhœa continues, a starch enema, with tr. opii 80 m., should be given, together with tannalbin 15 gr. in cachet thrice daily. If the diarrhœa remains unaffected, tr. catechu 80 m., mist. cretæ ad 1 oz. may be given twice or thrice daily until the symptom is relieved.

Headache.—If this is marked, antipyrine 5 gr. may be given, and repeated in two hours. An ice-cap applied to the head or cold sponging often gives relief.

Hæmorrhage.—Absolute rest is essential. Stimulants should be suspended. If this symptom is severe, food should be withheld. Morphia $\frac{1}{3}$ gr. should be given at once. In addition, an ice-cold water enema, containing 1 dr. calcium lactate, should be given; and oil of turpentine 10 m. taken by the mouth every four hours.

If much collapse follows on an attack of hæmorrhage, 2 pints of sterilised salt solution (1 dr. of sodium chloride to a pint of water) should be injected subcutaneously.

Hyperpyrexia.—Whenever the temperature is above 104° F. the body should be sponged with cold water. If this fails to reduce the temperature, the body should be wrapped in a sheet wrung out of water at 100° F., and the limbs and thorax should be rubbed with ice. This should be followed by light friction with a towel. If this measure fails, the patient should be given a little stimulant, and placed in a bath at 90° F. The bath temperature should be rapidly lowered to 70° F. by means of ice. The patient should remain in the bath until his temperature is 102° F., but in no case for longer than fifteen minutes, the limbs and thorax being rubbed all the time. The bath may be repeated as occasion arises.

Perforation.—This requires immediate operation. If the patient is too collapsed for this ordeal, we have to trust to complete rest and full doses of opium.

Thrombosis.—The affected limb should be kept at rest, and glycerine and belladonna applied. Citrate of sodium should be given in 30 to 60 gr. doses every four hours for six doses, and then in 20 gr. doses thrice daily.

Tympanites.—The essential thing to do as soon as this symptom shows itself is to place the patient on a diet of whey. Internally, turpentine 10 m. may be given every four hours for twenty-four hours, together with a large warm-water enema containing oil of cajuput 5 to 10 m. As the condition improves, a gradual and tentative return may be made to a milk diet.

Sleeplessness.—The best treatment is cold sponging. If this fails, 20 gr. trional in hot whiskey or brandy may be given by the mouth. If the sleeplessness continues, an injection of morphia $\frac{1}{8}$ to $\frac{1}{3}$ gr. should be prescribed, unless there is much bronchitis.

Convalescence.—After ten days of normal temperature, the diet may be gradually changed to ordinary diet (*see above*). The patient may be allowed to sit up, as a rule, in three weeks, and then gradually the amount of exertion

permitted increased. A course of tonics and, later on, a sea voyage are useful. Convalescence is necessarily prolonged, and great care against over-exertion is required in the early stages.

Prophylactic.—Persons who have been exposed to the infection should take precautions as to the purity of the water and milk supply, and should be advised to submit to vaccine treatment. One thousand million dead typhoid bacilli should be injected under the skin (probably administration by the mouth three hours after food in 2 oz. of milk is as efficacious), and twice this dose given in ten days' time. In some cases, partial collapse or vomiting follows the injections; consequently the patient should remain indoors on the day the vaccine is given, and if disquieting symptoms occur go to bed.

TYPHUS FEVER.

*A suspect should be isolated for three weeks. A patient should be isolated until convalescence is well established—*as a rule, for, at least, a month after the commencement of the illness.

General treatment.—A large well-ventilated room is essential, free ventilation being necessary for the patient and the best precaution against the spread of infection. The disease is highly contagious, and therefore the sick-room, if possible, should be at the top of the house and thoroughly isolated. Absolute rest is necessary, but the patient should from time to time be gently turned on his side, in view of the marked tendency towards hypostatic pneumonia. Care should be taken to prevent the patient sitting up too soon in convalescence, as cardiac weakness is common. The patient should be closely watched, for delirium and delusions frequently occur.

The *diet* should consist of milk and water, water being given freely. *Alcohol* is usually necessary, and if there is evidence of cardiac weakness should be prescribed in considerable quantities, together with hypodermic injections of strychnine $\frac{5}{100}$ gr. and digitalin $\frac{1}{100}$ gr.

The condition of the *bladder* should be carefully watched. Otherwise the treatment is symptomatic, and should be carried out on the same lines as in typhoid fever.

ULCER OF MOUTH. See TONGUE, ULCER OF ; and STOMATITIS.

URÆMIA. See BRIGHT'S DISEASE, p. 45.

URTICARIA.

The most useful drug is calcium lactate in full doses : *Calcii lactat.* 1 dr., ext. glycyrrhiz. liq. 80 m., aq. anisi ad 1 oz. at once, to be repeated in two hours if no improvement occurs. A tepid bath containing half a pound of bicarbonate of soda to 20 gallons of water does much to relieve the itching, especially if after drying acid. hydrocyan. dil. 1 dr., liq. carbon. detergen. 2 dr., eau de Cologne 4 dr., aq. ad 10 oz. is applied to the skin, and subsequently a dusting-powder of starch and oxide of zinc. In all cases magnesium sulphate should be given as a purge, the diet regulated, and salol 10 gr. (in cachet) given thrice daily for a few days. Linen or silk should be worn next the skin by persons subject to this condition.

Prophylactic.—The cause should be investigated and measures taken to control it. Amongst possible causes the following may be mentioned : articles of diet, such as shell-fish, strawberries, cheese, sour wines ; external parasites ; in children, worms ; reflex irritation, such as ovarian troubles ; gout ; particular forms of clothing, such as flannel.

VACCINE THERAPY.

The introduction into the body of vaccines prepared from dead micro-organisms or their products *in suitable doses* increases the immunising capacity of the patient's blood-serum, and in this way enables the phagocytic cells to attack the invading micro-organisms. It is equally true that the introduction of dead micro-organisms or their products *in unsuitable doses* depresses the immunising capacity of the patient's serum and causes an exacerbation of the disease. The dosage of the vaccine administered is

therefore of great importance. Further, it has been shown that too frequent repetition of a dose, which in the first instance may have been suitable, also depresses the immunising capacity of the serum and causes an exacerbation of the disease. The spacing of the dosage is therefore also of great importance. Until recently, it has been held that the proper dose, and the proper intervals between successive doses, could only be determined by means of frequent observations of the opsonic index. Such observations involve great technical skill and much labour and expense, and therefore are not available for the majority of patients suffering from infective diseases. Further, in instances of infective disease in which auto-inoculation is constantly taking place, such as occurs in the acuter forms of pulmonary tuberculosis, observations of the opsonic index may be most misleading unless two or more observations are made daily. Fortunately, however, it has been shown recently that the opsonic index has a definite relation to the temperature and to the clinical symptoms. For example, when the temperature rises suddenly the index falls, and when the temperature falls the index rises; when the patient's condition shows improvement the index is raised, and when the symptoms are aggravated the index falls. Notwithstanding the fact that the dose and the intervals between the doses can be determined in the great majority of instances without the necessity of utilising the opsonic index, treatment by means of vaccines necessitates previous experience of this method on the part of the medical practitioner if more harm than good is not to result. Careful administration of vaccines, however, gives brilliant results in a number of conditions.

In cases of unusual difficulty frequent determinations of the opsonic index are often of value.

Method of administration.—Until recently, vaccines were always given by means of a hypodermic injection, but it is now established that tuberculin, staphylococci, streptococci, and other vaccines can be given with good

results when administered by the mouth on an empty stomach or by the rectum. *The administration by hypodermic injection* causes a longer preliminary negative phase as a rule than administration by the mouth; consequently, when vaccines are given by the hypodermic method the interval between the doses must as a rule be longer and the dose itself somewhat smaller than when the oral method is employed. If the hypodermic method is employed it is necessary to use strict aseptic precautions; the injections being made into the subcutaneous tissue between the shoulder-blades or in the flanks. When the *oral method of administration* is employed, the vaccine, suspended in 10 c.c. of normal saline solution, should be given, together with 2 oz. of milk, on an empty stomach some 2½ to 3 hours after food. Vaccines may be administered with 1 oz. of milk *by the rectum* by means of a soft catheter and funnel, the patient resting for twenty minutes after each dose.

It may be taken as an absolute rule that: (1) *A dose of any vaccine which is followed by fever and an increase in the severity of the symptoms is too large*; (2) *Better results are obtained from vaccines made from the patient's own micro-organisms than are obtained from stock vaccines*; (3) *Treatment should be continued for some time after all symptoms have gone, to diminish any tendency to relapse.*

Dosage and spacing of doses.—It is of the greatest importance to give doses which do not cause a rise of temperature or any exacerbation of the symptoms. The tendency is to try to proceed too fast, and this can only result eventually in harm. If any dose produces a rise of temperature, headache, pains in the limbs, or any increase in the severity of the symptoms, it is too large, or has been given at too short an interval after the preceding dose; consequently the next dose should be smaller. An inefficient dose produces no effect one way or the other, and should be increased. As a general rule, when successive doses of any vaccine are given, the dose has to be gradually

increased, but a dose which is producing satisfactory results should not be increased, unless its effect lasts for a shorter period. No absolute rule, however, can be laid down as to any routine increase, as the susceptibility of individual patients varies enormously; but, as a general rule, it may be stated that the first dose should be small, and that the more acute the condition, or the younger the patient, the smaller should the dose be. Subsequently, further doses should be given at varying intervals, according to the condition of the individual patient. If the dose is cautiously increased, a dose which causes a slight reaction is eventually reached, in many instances. When this occurs, the next dose should be a smaller one, and the dose should not be increased above this for some little time.

Examples.—In a case of general staphylococcic infection the initial dose was 100 million staphylococci; subsequent doses at four daily intervals were given as follows: 150 million, 200 million, 250 million, 500 million, 1000 million, with good results. In another case, 150 million staphylococci always caused a rise of temperature: in this instance 100 million staphylococci were given every four days for some weeks, with good results. In several cases of pulmonary and other forms of tuberculosis it has been possible to give a commencing dose of $\frac{1}{10000}$ to $\frac{1}{2000}$ mgm., and to increase it gradually but progressively to 10 mgm. In many others it has not been possible to increase the dose above $\frac{1}{200}$ mgm. without producing fever, and good results have been obtained by adhering to this dose. In a few instances the maximum dose which it was possible to give without producing fever was $\frac{1}{40000}$ mgm. In a case of bacterium coli infection, any dose above 8 million caused fever; in another, a 10 million dose was given as an initial dose, and gradually increased to 100 million with satisfactory results.

The space or intervals between the doses must depend on the individual and on the particular vaccine used. In

the next paragraphs some general rules are given. In some instances good results are obtained by a progressive increase in the dose at intervals of forty-eight to seventy-two or more hours until a dose is reached which causes the temperature to fall, or to become 'flat,' that is diminishes the daily fluctuation. The fact that the effect of a dose is wearing off is usually shown by the clinical symptoms. The temperature (even when subnormal) shows less fluctuation after a proper dose, and becomes 'flat.' Thus a morning temperature of 97° F. and an evening temperature of 100° F. may be replaced by a continuous temperature of 99° F. for a few days. As the effect of the dose wears off, the temperature again shows fluctuation—*e.g.* between 97° F. and 99° F. Therefore, if the temperature-curve is almost a straight line the dose has done good, and as soon as a daily fluctuation to the extent of a degree or a degree and a half recommences the same dose should be repeated. When a given dose, on being repeated, produces an effect which lasts for a shorter period than on previous occasions it may be increased. The intervals between the doses which are given below may be taken as a guide, but they must be increased (or the dose diminished) if the symptoms are aggravated. In susceptible cases it is often a good plan to give very minute doses on two successive days—*e.g.* instead of giving $\frac{1}{10000}$ mgm. of tuberculin (TR), $\frac{1}{20000}$ mgm. may be given on two days.

Doses of Various Vaccines.

Bacterium coli.—Initial dose, 3 to 5 million. Subsequent doses, at two to ten days' interval between each, up to 100 million.

Friedländer's bacillus.—Doses of fifty million are stated to do good in some cases of asthma. They may be given at weekly intervals, and increased to 100 million.

Gonococci.—Initial dose, 1 to 5 million. Subsequent doses, at two to ten days' interval between each, up to 20 million.

Pneumococci.—Initial dose, 10 to 20 million. Subsequent doses, with one to three days' (according to toxicity of vaccine and dose given) interval between each, up to 100 million.

Staphylococci.—Initial dose, 100 million. Subsequent doses, with four to five days' interval between each, up to 1000 million—e.g. 150, 200, 250, 500, 1000.

Streptococci.—Initial dose, 2 to 5 million. Subsequent doses, with four to five days' interval between each, up to 50 million—e.g. 5, 10, 12.5, 15, 20, 25, 30, 50.

Tuberculin (TR).—The acuter the infection the smaller should the initial dose be and the more gradual the increase of the dose. The younger the patient the smaller should the dose be. In some cases, doses as small as $\frac{1}{80000}$ to $\frac{1}{30000}$ mgm. must be given. In more chronic cases the initial dose may be $\frac{1}{10000}$ to $\frac{1}{3000}$ mgm. The dose which produces a satisfactory effect on the temperature varies with each case. In some cases it may be as little as $\frac{1}{30000}$ mgm., in others as much as $\frac{1}{10}$ mgm. If the initial dose is $\frac{1}{30000}$ mgm., it may be increased, in accordance with the preceding directions, as follows: $\frac{1}{15000}$, $\frac{1}{10000}$, $\frac{1}{8000}$, $\frac{1}{6000}$, $\frac{1}{5000}$, $\frac{1}{4000}$, $\frac{1}{3000}$, $\frac{1}{2000}$, $\frac{1}{1000}$, $\frac{1}{750}$, $\frac{1}{500}$, $\frac{1}{350}$, $\frac{1}{250}$, $\frac{1}{150}$, $\frac{1}{75}$, $\frac{1}{50}$, $\frac{1}{35}$, $\frac{1}{20}$, $\frac{1}{15}$, $\frac{1}{10}$, $\frac{1}{7}$, $\frac{1}{5}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, 1, $1\frac{1}{2}$, $1\frac{1}{2}$, 2, 3, &c. mgm.

In cases of double or treble infection, such as tuberculosis complicated by staphylococcic, streptococcic, or other infection, the problem is more difficult. The effect of tuberculin should, in most cases, be first obtained, and the other vaccines given subsequently. In such cases useful information is obtained from determinations of the opsonic index, but the effect of the different vaccines may be frequently determined by studying the temperature and clinical symptoms, provided the vaccines are given separately and at a few days' interval.

VARICELLA. See CHICKEN-POX.

VARIOLA. See SMALL-POX.

VERTIGO.

The treatment of this symptom depends on the cause, and will be found under the appropriate heading. It may be due to disorders of digestion, to ocular defects, aural conditions (see TINNITUS and MÉNIÈRE'S DISEASE), neurasthenia, migraine, arterio-sclerosis, epilepsy, or organic disease of the central nervous system, such as tumour of the cerebrum or cerebellum, or locomotor ataxy. In cases where no cause can be found, careful attention should be given to the general health. Anæmia should receive attention. Fatigue and constipation should be avoided. Acid. hydrobrom. dil. 80 m., quin. sulph. 1 gr., syrup. aurant. 80 m., aq. destil. ad 1 oz. may be given thrice daily fifteen minutes before meals.

VOMITING.

A careful search must be made for the cause. If this is found to depend on improper feeding in infants, or on disease such as gastric ulcer, Bright's disease, or other well-marked condition, reference should be made to the appropriate heading. (Cf. INFANT-FEEDING, DYSPEPSIA, GASTRIC ULCER, BRIGHT'S DISEASE, SEA-SICKNESS, &c.) The possibility of a *strangulated hernia* must not be forgotten. Again, *vomiting towards the end of acute diseases* is suggestive of heart-failure, which must receive attention. *Vomiting at the commencement of acute illnesses* rarely requires treatment beyond an appropriate and easily digested fluid diet, but if it becomes distressing a small dose of morphia should be injected and the stomach washed out. In the vomiting due to *spasmodic obstruction of the pylorus in infants* the child should be fed on albumin-water and milk, peptonised and diluted with three parts of barley-water, in small quantities at a time; $\frac{1}{2}$ gr. of Finkler's papain, and $\frac{1}{2}$ gr. of sodium bicarbonate in $\frac{1}{2}$ teaspoonful of water should be given with several feeds during the day; the stomach should be well washed out each day, and afterwards $\frac{1}{2}$ m. of tr. opii may be given in a few

drops of water. If these measures fail to produce improvement, the question of an operation must be considered. There is a peculiar *periodic form of vomiting in children*. This is sometimes due to an idiosyncrasy towards particular articles—*e.g.* eggs—but, as a rule, depends upon an incapacity to digest the amount of carbohydrate taken. Sweet things such as jams should be forbidden, and farinaceous foods taken in strict moderation for some months. In addition, there should be freedom from excitement and over-work, and a healthy open-air life without fatigue should be prescribed. *Vomiting during pregnancy* does not necessarily depend on the pregnancy. Consequently other causes must be excluded. In those cases in which it results from pregnancy, the treatment depends on the severity of the condition, but in all cases care should be taken to avoid fatigue, and adequate rest should be insisted on. Again, the diet should be light, the patient should rest for an hour before meals and half an hour afterwards, and the bowels should be regulated. *In mild cases* the patient in addition should stay in bed for breakfast and take sodii bicarbon. 15 gr., acid. hydrocyan. dil. 8 m., inf. gent. co. ad 1 oz. fifteen minutes before luncheon and dinner. *In more severe cases* the patient should stay in bed, and for forty-eight hours food should not be given by the stomach. Two to three pints of normal saline solution (1 dr. to 1 pint) should be injected into the rectum during the twenty-four hours. A little water may be given by the mouth, and in addition an effervescing mixture of hydrocyanic acid—*e.g.* two tablespoonfuls of a mixture containing potassium bicarb. 20 gr., ammon. carb. 2 gr., sp. chloroform. 10 m., aq. destill. ad 1 oz. should be mixed with two tablespoonfuls of a mixture containing acid. citric. 15 gr., acid. hydrocyan. dil. 8 m., aq. destill. ad 1 oz., and drunk in a state of effervescence thrice daily. At the end of forty-eight hours a gradual return to ordinary diet may be commenced, at first small portions of peptonised milk being given every two

hours. If the above measures fail, cocaine $\frac{1}{12}$ gr., bismuth. carbon. 10 gr., morphia $\frac{3}{4}$ gr. may be taken in the form of a cachet or powder every four hours for four to six doses, and the effect of lavage of the stomach tried. In cases in which the vomiting persists and emaciation results, the question of inducing labour must be considered.

WARTS.

Facial warts are best removed by the electric cautery. Warts on other parts of the body should be pared down with a razor, without producing bleeding, until the superficial portion is removed. The wart should then be touched with glacial acetic acid. In a few minutes the wart should be touched with acid. salicylic. 100 gr. in 1 oz. of an alcoholic solution of collodion. The salicylic acid should then be applied night and morning, and the crust removed from time to time.

WEIR-MITCHELL TREATMENT. *See NEUR-ASTHENIA.*

WHOOPIING-COUGH. *See PERTUSSIS.*

WORMS. *See ANKYLOSTOMA, ROUND-WORM, TAPE-WORM, THREAD-WORMS.*

WRITER'S CRAMP.

The essential thing is complete rest from writing for at least three months. The general health should be improved. If no pain be present, massage and electricity (continuous current) should be prescribed. During the time in which writing is forbidden the patient is assisted by learning to use the typewriter. After three months' rest from writing, the patient may be allowed to write again, but he must write from the elbow and not from the wrist, and must keep his elbow resting on the desk, which should be arranged at a convenient angle. It is advisable to use a thick cork penholder, and to hold it between the index and middle finger.

YAWS.

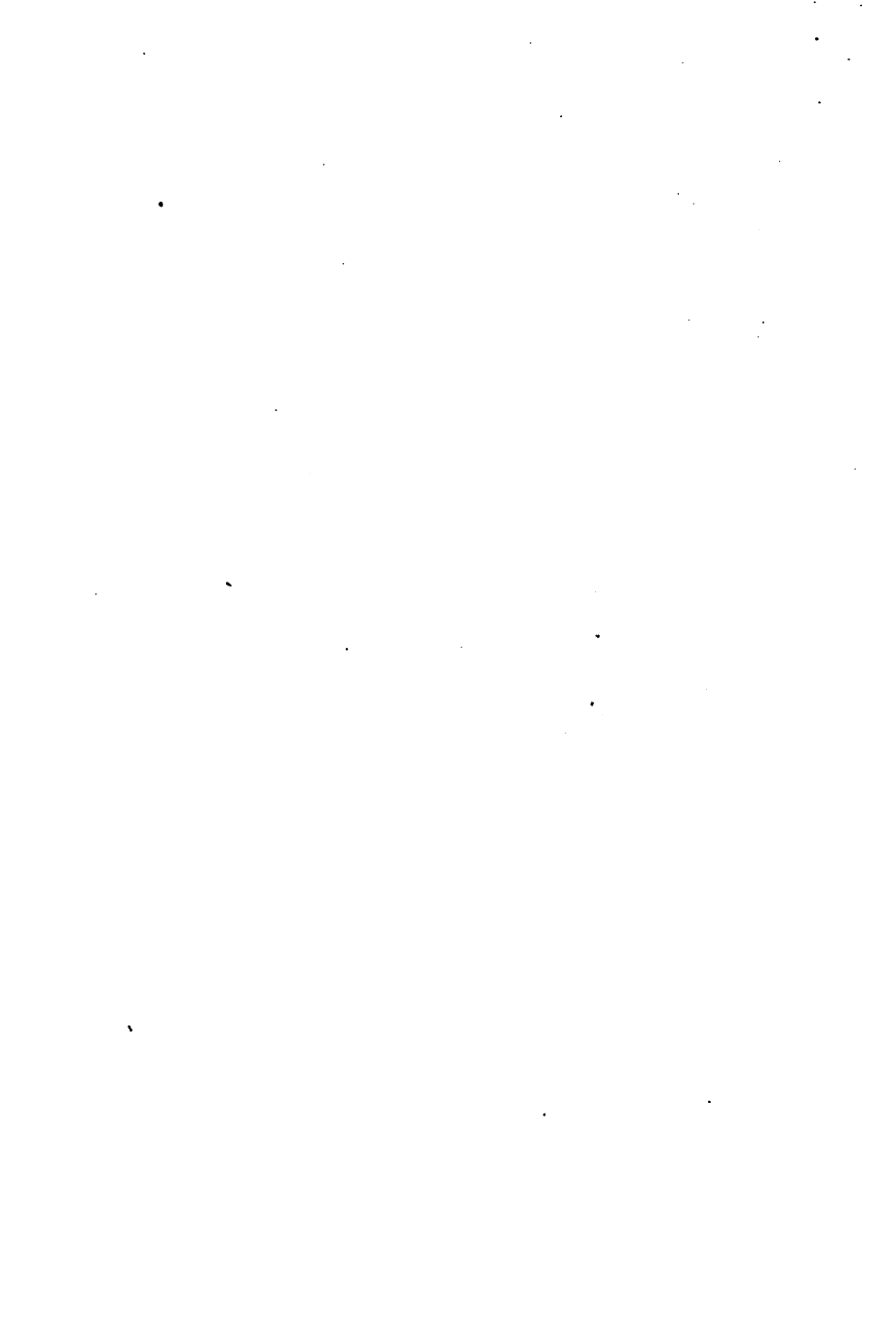
Strict cleanliness with regard to the body and the evacuations is necessary. The food should be nutritious

and fresh. Iodide and mercury may be given in full doses. No local treatment is required, unless the growths are ulcerated. If this is the case, they should be touched with silver nitrate and dressed with antiseptics.

YELLOW FEVER.

Rest in bed is essential. The diet should be fluid and iced, and should be given freely, but in small quantities at a time. The treatment is symptomatic. An initial dose of calomel 5 gr. should be given, but not repeated. The best *routine treatment* is an ounce and a half, every hour, of a solution of 150 gr. of bicarbonate of soda and $\frac{1}{2}$ gr. perchloride of mercury in a quart of water.

Vomiting is relieved by hot applications to the epigastrium. *Delirium* is best treated by hot baths. *Collapse* should be treated with alcohol and strychnine.





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